Year 7 Mathematics
Distance Learning
Quiz and Learn Booklet
Summer 2

Name :

Form :
# Learning schedule for Summer term 2

<table>
<thead>
<tr>
<th>W/B</th>
<th>New content</th>
<th>Pg.</th>
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<tbody>
<tr>
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<td>4</td>
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<tr>
<td></td>
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<td>9</td>
</tr>
<tr>
<td></td>
<td>Numeracy Ninjas: Skills challenge 1</td>
<td>15</td>
</tr>
<tr>
<td>8 Jun</td>
<td>Converting fractions to percentages (only use factors of 100)</td>
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<tr>
<td></td>
<td>Converting fractions to decimals (using fractions out of 100)</td>
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<td>Fractions, Decimals and Percentages</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Numeracy Ninjas: Skills challenge 7</td>
<td>57</td>
</tr>
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Introduction

What is included in this home learning pack?

It is not easy to learn at home without the support from your teacher that you are used to. This this pack includes topics that you will have already covered in Key Stage 2 at primary school so that you get a chance to go back over them and remember them. It may also include some new topics that you would have been taught in the spring and summer terms which you may not have seen before depending on what you studied at primary school. This new content is not everything and the topics have been chosen carefully as ones we think you can study on your own at home with the help of the resources in this pack.

How should I use this pack effectively?

You should make sure that you use the video tutorials for each topic to ensure you have fully understood the topic. This should then be followed by completing the practice questions and attempting the ‘extend’ questions to really make you think. Mark your own mark using the answers to check you are on the right track. To finish, complete the progress check quizzes on Hegarty Maths to show your teacher that you are understanding the topics. They will be keeping an eye on your progress over the summer term.

How is this booklet structured?

<table>
<thead>
<tr>
<th>Key points</th>
<th>Precise bullet points which outline the key knowledge you need to know in each topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples – Video tutorials</td>
<td>Videos that explain each topic and go through key examples</td>
</tr>
<tr>
<td>Practice</td>
<td>A series of questions to give you the opportunity to practice and demonstrate you have understood the topic fully</td>
</tr>
<tr>
<td>Extend</td>
<td>Some more challenging and stretching questions to make you think a little bit more. Rise to the challenge and have a go at these questions!</td>
</tr>
<tr>
<td>Answers</td>
<td>A full set of answers for the practice questions so that you can check your work and assess your progress as you work through the booklet</td>
</tr>
<tr>
<td>Progress check</td>
<td>Quizzes on Hegarty Maths to show your teacher that you have understood the topic fully</td>
</tr>
</tbody>
</table>

Weekly skills check

Each week, you will have one lessons which provides you with a timed challenge. This is based around numeracy and general mathematical skills which we would expect all Year 7 students to be confident with. You should time yourself and see if you can improve your time each week.
Equivalent Fractions

Key points

- A division can be written as a fraction. If the division is $a \div b$, this can be written as $\frac{a}{b}$.
- A fraction is made up of a numerator (top number) and denominator (bottom number).
- Some divisions give the same answers, for example, $10 \div 5 = 2$ and also $8 \div 4 = 2$. This means that $10 \div 5 = 8 \div 4 = 2$. These calculations are known as equivalent as they are equal to each other.
- When calculations of the same value are written as fractions these divisions are known as equivalent fractions. For example, $\frac{10}{5} = \frac{8}{4}$.
- Equivalent fractions have the same value, for example $\frac{1}{2}$ has the same value as $\frac{2}{4}$.
- To generate equivalent fractions, you take your original fraction and multiply the numerator and denominator by a common amount. For example, in $\frac{1}{2}$, if you multiply the numerator and denominator by 3 you get... $\frac{1}{2} \rightarrow \frac{3}{6}$. This means that $\frac{3}{6}$ is also equivalent to $\frac{1}{2}$.
- To work out a missing value in an equivalent fraction, look for pairs of numerators, or denominators, and work out what you multiply one by to get the other. Then do the same for the other value. For example, $\frac{3}{4} = \frac{7}{20}$ you can see that to get from 4 to 20 you multiply by 5, so that means the ? must be the answer when you multiply 3 by 5. That means that the equivalent fraction must be $\frac{15}{20}$ (as $3 \times 5 = 15$ and $4 \times 5 = 20$).

Examples – Video tutorials

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths video below https://qr.go.page.link/Qzjfv

or click on the QR code to follow the hyperlink
Practice

Question 1: Find the missing numbers

(a) \( \frac{2}{3} = \_ \)  \hspace{1cm} (b) \( \frac{1}{5} = \_ \)  \hspace{1cm} (c) \( \frac{3}{4} = \_ \)  \hspace{1cm} (d) \( \frac{5}{7} = \_ \)

(e) \( \frac{3}{5} = \_ \)  \hspace{1cm} (f) \( \frac{4}{12} = \_ \)  \hspace{1cm} (g) \( \frac{3}{10} = \_ \)  \hspace{1cm} (h) \( \frac{7}{8} = \_ \)

(i) \( \frac{3}{4} = \_ \)  \hspace{1cm} (j) \( \frac{8}{55} = \_ \)  \hspace{1cm} (k) \( \frac{2}{9} = \_ \)  \hspace{1cm} (l) \( \frac{2}{3} = \_ \)

(m) \( \frac{1}{20} = \_ \)  \hspace{1cm} (n) \( \frac{5}{6} = \_ \)  \hspace{1cm} (o) \( \frac{3}{8} = \_ \)  \hspace{1cm} (p) \( \frac{7}{12} = \_ \)

Question 2: Find the missing numbers

(a) \( \frac{6}{7} = \_ \)  \hspace{1cm} (b) \( \frac{9}{20} = \_ \)  \hspace{1cm} (c) \( \frac{5}{12} = \_ \)  \hspace{1cm} (d) \( \frac{7}{8} = \_ \)

(e) \( \frac{4}{72} = \_ \)  \hspace{1cm} (f) \( \frac{3}{4} = \_ \)  \hspace{1cm} (g) \( \frac{7}{25} = \_ \)  \hspace{1cm} (h) \( \frac{15}{42} = \_ \)

(i) \( \frac{11}{16} = \_ \)  \hspace{1cm} (j) \( \frac{2}{9} = \_ \)  \hspace{1cm} (k) \( \frac{13}{25} = \_ \)  \hspace{1cm} (l) \( \frac{9}{144} = \_ \)

Extend

Question 1: Write down 3 different fractions that are equivalent to \( \frac{1}{2} \)

Question 2: Write down 3 different fractions that are equivalent to \( \frac{3}{5} \)

Question 3: Write down 3 different fractions that are equivalent to \( \frac{7}{12} \)
Question 4: Dave and Tom are discussing fractions. Is either man correct?

\[ \frac{4}{5} \text{ is equivalent to } \frac{16}{20} \]

\[ \frac{4}{5} \text{ is equivalent to } \frac{20}{24} \]

Dave

Tom

Question 5: Use the grid to explain why \( \frac{3}{4} \) cannot be written as a fraction with a denominator of 15.

Question 6: Macey has completed her maths homework. Can you explain what she has done wrong?

(a) \( \frac{3}{4} = \frac{4}{16} \)

(b) \( \frac{3}{5} = \frac{6}{15} \)

(c) \( \frac{7}{8} = \frac{35}{5} \)

(d) \( \frac{2}{8} = \frac{16}{40} \)
Answers

Question 1: Find the missing numbers

(a) \( \frac{2}{3} = \frac{4}{6} \)  
(b) \( \frac{1}{5} = \frac{4}{20} \)  
(c) \( \frac{3}{4} = \frac{9}{12} \)  
(d) \( \frac{5}{7} = \frac{10}{14} \)  
(e) \( \frac{3}{5} = \frac{15}{25} \)  
(f) \( \frac{4}{7} = \frac{12}{21} \)  
(g) \( \frac{3}{10} = \frac{15}{50} \)  
(h) \( \frac{7}{8} = \frac{14}{16} \)  
(i) \( \frac{3}{4} = \frac{30}{40} \)  
(j) \( \frac{5}{8} = \frac{55}{88} \)  
(k) \( \frac{2}{9} = \frac{10}{45} \)  
(l) \( \frac{2}{3} = \frac{12}{18} \)  
(m) \( \frac{1}{20} = \frac{5}{100} \)  
(n) \( \frac{5}{6} = \frac{15}{18} \)  
(o) \( \frac{3}{8} = \frac{9}{24} \)  
(p) \( \frac{7}{12} = \frac{21}{36} \)

Question 2: Find the missing numbers

(a) \( \frac{6}{7} = \frac{42}{49} \)  
(b) \( \frac{9}{20} = \frac{63}{140} \)  
(c) \( \frac{5}{12} = \frac{35}{84} \)  
(d) \( \frac{7}{8} = \frac{56}{64} \)  
(e) \( \frac{4}{9} = \frac{32}{72} \)  
(f) \( \frac{3}{4} = \frac{27}{52} \)  
(g) \( \frac{7}{25} = \frac{140}{500} \)  
(h) \( \frac{6}{15} = \frac{42}{105} \)  
(i) \( \frac{11}{16} = \frac{88}{128} \)  
(j) \( \frac{2}{9} = \frac{24}{108} \)  
(k) \( \frac{13}{25} = \frac{195}{375} \)  
(l) \( \frac{9}{16} = \frac{81}{144} \)

Extend:

Question 1: Write down 3 different fractions that are equivalent to \( \frac{1}{2} \):

- \( \frac{2}{4} \)
- \( \frac{3}{6} \)
- \( \frac{4}{8} \)

Question 2: Write down 3 different fractions that are equivalent to \( \frac{3}{5} \):

- \( \frac{12}{20} \)
- \( \frac{15}{25} \)
- \( \frac{18}{30} \)

Question 3: Write down 3 different fractions that are equivalent to \( \frac{7}{12} \):

- \( \frac{14}{24} \)
- \( \frac{21}{36} \)
- \( \frac{28}{48} \)
Progress check

You should now complete **quiz numbers 59** on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
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| Date completed: |  |
Simplifying Fractions

Key points

- Fractions are written in the form \( \frac{a}{b} \), where \( a \) and \( b \) are integers (whole numbers).
- Sometimes these whole numbers have a common factor, for example if they both are in the 3 times table they have a common factor of 3.
- You can simplify a fraction by dividing the numerator and denominator of a fraction by their shared common factor – this will give you a fraction that is equivalent to the first fraction (so it has the same value). We call this process simplification as it usually makes the numerator and denominator smaller numbers that are simpler to work with.
- For example, to simplify \( \frac{4}{20} \) you would look to see what factor the numerator and denominator have in common. You can see that they are both in the 4 times table, so they share a factor of 4. That means you can divide both by 4, giving \( \frac{4}{20} = \frac{1}{5} \). We can say that “\( \frac{4}{20} \) simplified is \( \frac{1}{5} \”).
- Sometimes, the numerator and denominator have more than one common factor, for example in \( \frac{4}{20} \) the 4 and 20 have 2 and 4 as common factors. That means that \( \frac{4}{20} \) simplifies to \( \frac{2}{10} \) (when you simplify by dividing by 2) and also simplifies to \( \frac{1}{5} \) (when you simplify by dividing by 4.)
- To decide what to put as your answer, you should always aim to simplify fully. That means that you should divide the numerator and denominator by the highest common factor that they have. That means that \( \frac{4}{20} \) simplified fully is \( \frac{1}{5} \) as we have divided by their highest common factor, 4.
- To check if an answer is simplified fully, after simplifying, check to see if the numerator and denominator still share any common factors. If they do, keep dividing until they no longer share any common factors. This helps if the numbers are large. For example, \( \frac{72}{80} \) are both even, so you can divide by 2 to simplify to \( \frac{36}{40} \). However, 36 and 40 are both in the 4 times table so you can divide by 4 to simply further to \( \frac{9}{10} \). 9 and 10 now share no common factors, so I can say that “\( \frac{72}{80} \) in simplest form is \( \frac{9}{10} \)”.

Examples – Video tutorials

CLIP NUMBER: 61

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths video below https://qrgo.page.link/waTaq
or click on the QR code to follow the hyperlink
Practice

Question 1: Simplify fully

<p>| | | | | | | |</p>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>2/4</td>
<td>(b)</td>
<td>6/9</td>
<td>(c)</td>
<td>6/8</td>
<td>(d)</td>
</tr>
<tr>
<td>(e)</td>
<td>4/6</td>
<td>(f)</td>
<td>9/12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td>10/15</td>
<td>(h)</td>
<td>9/15</td>
<td>(i)</td>
<td>8/12</td>
<td>(j)</td>
</tr>
<tr>
<td>(k)</td>
<td>15/35</td>
<td>(l)</td>
<td>6/21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(m)</td>
<td>18/22</td>
<td>(n)</td>
<td>16/20</td>
<td>(o)</td>
<td>9/24</td>
<td>(p)</td>
</tr>
<tr>
<td>(q)</td>
<td>8/28</td>
<td>(r)</td>
<td>300/500</td>
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</table>

Question 2: Cancel down each fraction to its simplest form

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</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>14/35</td>
<td>(b)</td>
<td>8/64</td>
<td>(c)</td>
<td>18/24</td>
<td>(d)</td>
</tr>
<tr>
<td>(e)</td>
<td>24/80</td>
<td>(f)</td>
<td>6/42</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(g)</td>
<td>36/66</td>
<td>(h)</td>
<td>18/45</td>
<td>(i)</td>
<td>70/120</td>
<td>(j)</td>
</tr>
<tr>
<td>(k)</td>
<td>22/110</td>
<td>(l)</td>
<td>18/72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(m)</td>
<td>60/140</td>
<td>(n)</td>
<td>45/135</td>
<td>(o)</td>
<td>40/360</td>
<td>(p)</td>
</tr>
<tr>
<td>(q)</td>
<td>85/35</td>
<td>(r)</td>
<td>48/36</td>
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</table>

Question 3: Simplify fully

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<tbody>
<tr>
<td>(a)</td>
<td>145/225</td>
<td>(b)</td>
<td>190/570</td>
<td>(c)</td>
<td>200/288</td>
<td>(d)</td>
</tr>
<tr>
<td>(e)</td>
<td>54/333</td>
<td>(f)</td>
<td>96/123</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Extend

Question 1: Which fractions below are equivalent to $\frac{2}{3}$?

\[
\begin{array}{cccccc}
4 & 6 & 8 & 9 & 10 \\
6 & 8 & 12 & 12 & 15 \\
\end{array}
\]

Question 2: James says that $\frac{1}{3}$ of the grid is shaded
Cara says $\frac{4}{12}$ of the grid is shaded.
Explain how they are both correct.

Question 3: Given that $5 \times 13 = 65$ and $7 \times 13 = 91$ simplify fully $\frac{65}{91}$

Question 4: Freddy has 40 cupcakes.
20 of the cupcakes are chocolate.
10 of the cupcakes are lemon.
8 of the cupcakes are strawberry.
The rest of the cupcakes are vanilla.

(a) What fraction of the cupcakes are chocolate?
Give the fraction in its simplest form.

(b) What fraction of the cupcakes are lemon?
Give the fraction in its simplest form.

(c) What fraction of the cupcakes are strawberry?
Give the fraction in its simplest form.

(d) What fraction of the cupcakes are vanilla?
Give the fraction in its simplest form.

Question 5: There are 200 students in a primary school.
80 students wear glasses.
What fraction of the students wear glasses?
Give the fraction in its simplest form.

Question 6: Sarah has £240 and she gives her mum £80.
What fraction of the money does Sarah have left?
Give the fraction in its simplest form.
Answers

Question 1: Simplify fully

(a) \[\frac{2}{4} \quad (b) \frac{6}{9} \quad (c) \frac{6}{8} \quad (d) \frac{5}{15} \quad (e) \frac{4}{6} \quad (f) \frac{9}{12} \]

(g) \[\frac{10}{15} \quad (h) \frac{9}{15} \quad (i) \frac{8}{12} \quad (j) \frac{10}{14} \quad (k) \frac{15}{35} \quad (l) \frac{6}{21} \]

(m) \[\frac{18}{22} \quad (n) \frac{16}{20} \quad (o) \frac{9}{24} \quad (p) \frac{20}{30} \quad (q) \frac{8}{28} \quad (r) \frac{300}{500} \]

Question 2: Cancel down each fraction to its simplest form

(a) \[\frac{14}{35} \quad (b) \frac{8}{64} \quad (c) \frac{18}{24} \quad (d) \frac{75}{100} \quad (e) \frac{24}{80} \quad (f) \frac{6}{42} \]

(g) \[\frac{36}{66} \quad (h) \frac{18}{45} \quad (i) \frac{70}{120} \quad (j) \frac{49}{56} \quad (k) \frac{22}{110} \quad (l) \frac{18}{72} \]

(m) \[\frac{60}{140} \quad (n) \frac{45}{135} \quad (o) \frac{40}{360} \quad (p) \frac{64}{100} \quad (q) \frac{85}{35} \quad (r) \frac{48}{36} \]

Question 3: Simplify fully

(a) \[\frac{145}{225} \quad (b) \frac{190}{570} \quad (c) \frac{200}{288} \quad (d) \frac{230}{495} \quad (e) \frac{54}{333} \quad (f) \frac{96}{123} \]

Extend:
Progress check

You should now complete quiz number 61 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

**Quiz 61**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
<th>Date completed:</th>
</tr>
</thead>
</table>

240 - 80 = 160

\[
\frac{160}{240} = \frac{2}{3}
\]
**Skills challenge 1**
(Numeracy Ninjas)

**Instructions**
- Complete the 30 questions below. You have **20 minutes maximum**.
- Time yourself. See how long it takes you to complete all of the questions.
- Ask your parent or sibling to check your answers when you are finished.
- Record your score and time taken to complete all 30 questions below.

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 + 3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>89 + 11</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What is half of 6?</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>125 – 10</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>177 + □ = 270</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>53 + 23 + □</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>805 – 804</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>4 × 1 = 4, so 4 + 4 = □</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Write 20:12 in 12 hour clock format</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>9:37 pm is how many minutes after 9:08 pm?</td>
<td></td>
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</tbody>
</table>

**Total out of 10**

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2 × 9 = □</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>24 + 3 = □</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>10 × □ = 80</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6 + □ = 3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1 × 2 = □</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>28 + 7 = □</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>□ × 6 = 54</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>□ + 2 = 5</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3 × 9 = □</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>4 + 4 = □</td>
<td></td>
</tr>
</tbody>
</table>

**Total out of 10**

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>61 × 31</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>657 – 382</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>7.2 × 94.2</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>0.7 as a fraction</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>46.15 + 5.08</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(-40) ÷ (-4)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>If a = 4, b = 3 and c = 1, what is the value of 3a – b^2?</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>3 – (-5)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>What is the highest common factor of 12 and 4?</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>What is the value of 13 squared?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
</table>

**Total out of 10**

Score: / 30

Time taken: :
Converting fractions to percentages

Key points

- A fraction is part of a whole. Example $\frac{3}{5}$.
- Percentages are equivalent to fractions out of 100. Example $\frac{30}{100} = 30\%$.
- To convert fractions to percentages, you can use your knowledge of equivalent fractions.
- Example: Convert $\frac{3}{5}$ to a percentage. First write an equivalent fraction with a denominator of 100. $\frac{3 \times 20}{5 \times 20} = \frac{60}{100} = 60\%$

Examples – Video tutorials

CLIP NUMBER: 75 and 76

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below https://corbettmaths.com/2013/03/29/fractions-to-percentages/

Converting fraction to percentages

or click on the QR code to follow the hyperlink
Practice

Question 1: Convert the following fractions into percentages.

(a) \(\frac{9}{50}\)  (b) \(\frac{3}{10}\)  (c) \(\frac{4}{5}\)  (d) \(\frac{12}{25}\)

(e) \(\frac{3}{4}\)  (f) \(\frac{9}{10}\)  (g) \(\frac{36}{50}\)  (h) \(\frac{13}{20}\)

(i) \(\frac{1}{5}\)  (j) \(\frac{3}{20}\)  (k) \(\frac{24}{25}\)  (l) \(\frac{7}{10}\)

(m) \(\frac{17}{20}\)  (n) \(\frac{13}{10}\)  (o) \(\frac{184}{200}\)  (p) \(\frac{39}{300}\)

Extend

Question 1: There are 20 apples on a tree. 3 of the apples are bad. What percentage of the apples are bad?

Question 2: James sat an English test. He scored 39 out of 50. What percentage did he get right?

Question 3: Helen takes 25 shots at basketball training. She misses 7 shots. What percentage of the shots did Helen miss?

Question 4: There are 40 passengers on a bus. 14 passengers are going to Newport. What percentage of the passengers are going to Newport?
Answers

Practice

Question 1
(a) 18%    (b) 30%    (c) 80%    (d) 48%
(e) 75%    (f) 90%    (g) 72%    (h) 65%
(i) 20%    (j) 15%    (k) 96%    (l) 70%
(m) 85%    (n) 130%   (o) 92%    (p) 13%

Extend

Question 1:       Question 3:
15%              28%

Question 2:       Question 4:
78%              35%

Progress check

You should now complete quiz number 75 and 76 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

Quiz 75

Score: %

Date completed:

Quiz 76

Score: %

Date completed:
Converting fractions to decimals

Key points

- A fraction is part of a whole. Example \( \frac{3}{5} \)
- To convert fractions to decimals, you can use your knowledge of equivalent fractions and write the fraction with a denominator of 10 or 100.
- Example: Convert \( \frac{3}{5} \) to decimal. First write an equivalent fraction with a denominator of 10. \( \frac{3 \times 2}{5 \times 2} = \frac{6}{10} = 0.6 \)

Examples – Video tutorials

CLIP NUMBER: 73

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below https://corbettmaths.com/2013/02/15/fractions-to-decimals/

Converting fraction to decimals

or click on the QR code to follow the hyperlink
Practice

Question 1: Convert the following fractions to decimals.

(a) \( \frac{1}{2} \)  
(b) \( \frac{1}{4} \)  
(c) \( \frac{3}{4} \)  
(d) \( \frac{1}{5} \)  
(e) \( \frac{3}{5} \)  
(f) \( \frac{4}{5} \)  

(g) \( \frac{1}{10} \)  
(h) \( \frac{3}{10} \)  
(i) \( \frac{7}{10} \)  
(j) \( \frac{9}{10} \)  
(k) \( \frac{67}{100} \)  
(l) \( \frac{99}{100} \)  

Extend

Question 1: Match up any fraction and decimal that are equivalent. Not all the fractions and decimals will match up.

Question 2: Which is larger, 0.65 or \( \frac{3}{5} \)?

Explain your answer.

Question 4: In 2015, \( \frac{13}{20} \) of adults in the UK owned a smart phone.

Write \( \frac{13}{20} \) as a decimal.
Answers

Practice

Question 1:

(a) 0.5  (b) 0.25  (c) 0.75  (d) 0.2  (e) 0.6  (f) 0.8

(g) 0.1  (h) 0.3  (i) 0.7  (j) 0.9  (k) 0.67  (l) 0.99

Extend

Question 1:

Question 2: 0.65 is larger as $\frac{3}{5}=0.6$.

Question 4: 0.65

Progress check

You should now complete quiz number 73 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

Quiz 73

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
</tr>
</thead>
</table>

Date completed: 
Skills challenge 2
(Numeracy Ninjas)

Instructions

- Complete the 30 questions below. You have **20 minutes maximum**.
- Time yourself. See how long it takes you to complete all of the questions.
- Ask your parent or sibling to check your answers when you are finished.
- Record your score and time taken to complete all 30 questions below.

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$\circ + 6 = 10$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>What is double 5?</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Halve 63</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$26 + 30$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$98 + 99$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$22 + 10 = 22 + \circ$</td>
<td>8 + $\circ$</td>
</tr>
<tr>
<td>7</td>
<td>$3 + 223$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$20 + 61 = 20 + 60 + \circ$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>$\circ + 3 = 5$</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>$\circ + 2 = 20$</td>
<td></td>
</tr>
</tbody>
</table>

Total out of 10

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$9 \times 5 = \circ$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$10 + 2 = \circ$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$8 \times \circ = 8$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$16 + \circ = 4$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$8 \times 4 = \circ$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$15 + 3 = \circ$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>$\circ \times 2 = 12$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$\circ + 7 = 1$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>$5 \times 8 = \circ$</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>$14 + 2 = \circ$</td>
<td></td>
</tr>
</tbody>
</table>

Total out of 10

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$3905 \div 5$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$7 + 25 + 5$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$2.013 + 0.1$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$2.26 \times 1000$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$34 - 0.74$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Write 56/72 in its simplest form</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Difference between 4 and 4</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Value of the dot?</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>What is the lowest common multiple of 4 and 5?</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>What is the cube root of 27?</td>
<td></td>
</tr>
</tbody>
</table>

Total out of 10

Score: / 30

Time taken:
Converting decimals to fractions

Key points

- We can use place value to convert decimals to fractions.
- Example: Convert 0.25 to a fraction in its simplest form.
- $0.25 = 25$ hundredths $= \frac{25}{100} = \frac{1}{4}$

Examples – Video tutorials

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below https://corbettmaths.com/2013/02/15/decimals-to-fractions/

Converting decimals to fraction

or click on the QR code to follow the hyperlink
Practice

Question 1: Convert the following decimals to fractions, in their simplest forms

(a) 0.5  (b) 0.3  (c) 0.7  (d) 0.1
(e) 0.8  (f) 0.2  (g) 0.9  (h) 0.6
(i) 0.13 (j) 0.22 (k) 0.31 (l) 0.12
(m) 0.42 (n) 0.89 (o) 0.15 (p) 0.84
(q) 0.25 (r) 0.02 (s) 0.45 (t) 0.07
(u) 0.92 (v) 0.95 (w) 0.16 (x) 0.83

Extend

Question 1: Match up any decimal and fraction that are equivalent. Not all the decimals and fractions will match up

1/3  0.6
3/5  1.3
1/2  0.5
3/10 0.625
5/8  0.3

Question 2: Danny has tried to complete his homework. Can you spot any mistakes?

Q1 Write 0.6 as a fraction. Give your answer in its simplest form.
\[ \frac{6}{10} \]

Q2 Write 0.08 as a fraction. Give your answer in its simplest form.
\[ \frac{2}{50} \]
Answers

Practice

Question 1

(a) $\frac{1}{2}$  
(b) $\frac{3}{10}$  
(c) $\frac{7}{10}$  
(d) $\frac{1}{10}$  
(e) $\frac{4}{5}$  
(f) $\frac{1}{5}$  
(g) $\frac{9}{10}$  
(h) $\frac{3}{5}$  
(i) $\frac{13}{100}$  
(j) $\frac{11}{50}$  
(k) $\frac{31}{100}$  
(l) $\frac{3}{25}$  
(m) $\frac{21}{50}$  
(n) $\frac{89}{100}$  
(o) $\frac{20}{3}$  
(p) $\frac{21}{25}$  
(q) $\frac{1}{4}$  
(r) $\frac{1}{50}$  
(s) $\frac{9}{20}$  
(t) $\frac{7}{100}$  
(u) $\frac{23}{25}$  
(v) $\frac{19}{20}$  
(w) $\frac{4}{25}$  
(x) $\frac{83}{100}$

Extend

Question 1

The answer has not been left in its simplest form. $\frac{6}{10} = \frac{3}{5}$

0.08 as a fraction is $\frac{2}{25}$

Progress check

You should now complete quiz number 52 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

Quiz 52

Score: | %
--- | ---
| |

Date completed:
Fractions-Decimals-Percentages equivalences

Key points

- Proportions of a whole can be written as fractions, decimals or percentages.
- When converting fractions to decimals, it is useful to have a denominator of 10, 100 or 1000 where possible. If this is not possible, then you may need to use a calculator.
- When converting decimals to fractions, we need to consider the place value of the digits. For example, 0.8 is 8 tenths and so it would be written as \(\frac{8}{10}\) which can be simplified to \(\frac{4}{5}\).
- When converting percentages to fractions, we write the percentage with a denominator of 100 and then simplify if possible.
- When converting decimals to percentages, we multiply the decimal by 100.

Examples – Video tutorials

[OR]

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below

FDP equivalences

[SCAN ME]

or click on the QR code to follow the hyperlink
Practice

Question 8: Copy and complete the tables below

(a) | Fraction | Decimal | Percentage |
--- | --- | --- | --- |
| $\frac{4}{5}$ | | | 10% |
| $\frac{3}{20}$ | | | 0.17 |

(b) | Fraction | Decimal | Percentage |
--- | --- | --- | --- |
| $\frac{9}{35}$ | | | |
| $\frac{5}{8}$ | | | 68% |

(c) | Fraction | Decimal | Percentage |
--- | --- | --- | --- |
| $\frac{2}{3}$ | | | 0.003 |
| $\frac{9}{10}$ | | | 10.5% |

(d) | Fraction | Decimal | Percentage |
--- | --- | --- | --- |
| $\frac{19}{10}$ | | | 1.4 |
| $\frac{11}{4}$ | | | 265% |

Extend

Question 1: $\frac{3}{5}$ of a fruit punch is orange juice.

What percentage of the fruit punch is orange juice?

Question 2: 18% of a class wear glasses.

What fraction of the class wear glasses?

Question 3: Benny says that 0.2 is smaller than 19%.

Is he correct? Explain your answer.
Answers

(a) | Fraction | Decimal | Percentage |
---|---|---|---|
$\frac{1}{10}$ | 0.1 | 10% |
$\frac{4}{5}$ | 0.8 | 80% |
$1\frac{1}{100}$ | 0.17 | 17% |
$\frac{3}{5}$ | 0.6 | 60% |

(b) | Fraction | Decimal | Percentage |
---|---|---|---|
$\frac{11}{100}$ | 0.11 | 11.1% |
$\frac{5}{2}$ | 2.5 | 250% |
$1\frac{3}{10}$ | 1.3 | 130% |
$\frac{3}{5}$ | 0.6 | 60% |

(c) | Fraction | Decimal | Percentage |
---|---|---|---|
$\frac{7}{10}$ | 0.7 | 70% |
$\frac{3}{1000}$ | 0.003 | 0.3% |
$2\frac{1}{100}$ | 2.01 | 20.1% |
$\frac{5}{20}$ | 0.25 | 25% |

(d) | Fraction | Decimal | Percentage |
---|---|---|---|
$\frac{3}{5}$ | 0.6 | 60% |
$\frac{3}{10}$ | 0.3 | 30% |
$5\frac{3}{10}$ | 5.3 | 530% |
$\frac{7}{4}$ | 1.75 | 175% |

Question 1: 60%

Question 2: $\frac{9}{50}$

Question 3: He is incorrect. 19% = 0.19 which is smaller than 0.2

Progress check

You should now complete **quiz number 149** on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

**Quiz 149**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
<th>Date completed:</th>
</tr>
</thead>
</table>


Skills challenge 3
(Numeracy Ninjas)

Instructions

- Complete the 30 questions below. You have **20 minutes maximum**.
- Time yourself. See how long it takes you to complete all of the questions.
- Ask your parent or sibling to check your answers when you are finished.
- Record your score and time taken to complete all 30 questions below.

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$17 + \square = 20$</td>
<td>□</td>
</tr>
<tr>
<td>2</td>
<td>What is double 36?</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$89 + 10$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$143 - 20$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$5 = 4 + \square$</td>
<td>□</td>
</tr>
<tr>
<td>6</td>
<td>$14 - 7 = 14 - 4 = \square$</td>
<td>□</td>
</tr>
<tr>
<td>7</td>
<td>$56 + 56 = \square \times 56$</td>
<td>□</td>
</tr>
<tr>
<td>8</td>
<td>Draw hands on the clock face showing 7:05 pm</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>What is double 9?</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Halve 48</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total out of 10</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is the value of $(-15)$ squared?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$986 + 3175$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$\sqrt{64} + 8 + 8$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Write 780026 in words. (Use the opposite page for your answer)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$13.089 + 1000$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$(-1) \times (-6)$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Round 6.5254 to 2 d.p.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$10 + (-5)$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Round 0.006435 to 1 s.f.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Letter at (-2, -2)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>3</td>
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<td>4</td>
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<td>6</td>
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<td>7</td>
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<td>8</td>
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<td>9</td>
<td></td>
<td></td>
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<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total out of 10</strong></td>
<td></td>
</tr>
</tbody>
</table>

Score: / 30

Time taken: :
Converting improper fractions to mixed numbers and vice versa

Key points

- An improper fraction has a numerator larger than the denominator e.g. $\frac{7}{5}$.
- A mixed number is a whole number (integer) plus a fractional part e.g. $1\frac{3}{4}$.
- To convert an improper fraction to a mixed number:
  - Divide the numerator by the denominator.
  - Write down the whole number answer.
  - Write down any remainder above the denominator.
- To convert a mixed number to an improper fraction:
  - Multiply the whole number by the fraction’s denominator.
  - Add that to the numerator.
  - Then write the result on top of the denominator.

Examples – Video tutorials

CLIP NUMBER: 63 & 64

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below

Improper Fractions to Mixed Numbers

Mixed Numbers to Improper Fractions
Practice

Question 1: Change these improper fractions into mixed numbers

(a) \( \frac{7}{3} \)
(b) \( \frac{7}{5} \)
(c) \( \frac{5}{2} \)
(d) \( \frac{8}{7} \)
(e) \( \frac{5}{3} \)
(f) \( \frac{10}{3} \)
(g) \( \frac{23}{2} \)
(h) \( \frac{11}{4} \)
(i) \( \frac{11}{8} \)
(j) \( \frac{9}{4} \)
(k) \( \frac{13}{10} \)
(l) \( \frac{13}{6} \)
(m) \( \frac{16}{7} \)
(n) \( \frac{51}{10} \)
(o) \( \frac{34}{11} \)

Question 2: Change these mixed numbers into improper fractions

(a) \( 2 \frac{1}{5} \)
(b) \( 3 \frac{1}{2} \)
(c) \( 1 \frac{3}{4} \)
(d) \( 3 \frac{2}{3} \)
(e) \( 1 \frac{2}{5} \)
(f) \( 2 \frac{4}{7} \)
(g) \( 1 \frac{1}{3} \)
(h) \( 2 \frac{3}{10} \)
(i) \( 4 \frac{3}{4} \)
(j) \( 1 \frac{7}{12} \)
(k) \( 3 \frac{9}{10} \)
(l) \( 2 \frac{3}{50} \)
(m) \( 3 \frac{5}{8} \)
(n) \( 8 \frac{3}{8} \)
(o) \( 1 \frac{14}{32} \)

Extend

Question 2: Arrange these improper fractions in order, starting with the smallest.

\[ \frac{23}{4}, \frac{37}{7}, \frac{11}{2} \]

Question 3: Write down a mixed number between \( \frac{3}{11} \) and \( \frac{3}{5} \)

Question 4: Gregory feeds his cat \( \frac{2}{5} \) of a can of cat food each day.

Work out how many cans of cat food are eaten each fortnight.

Give your answer as a mixed number.
Answers

Question 1:
(a) $2 \frac{1}{3}$  (b) $1 \frac{2}{5}$  (c) $2 \frac{1}{2}$  (d) $1 \frac{1}{7}$  (e) $1 \frac{2}{3}$
(f) $3 \frac{1}{3}$  (g) $11 \frac{1}{2}$  (h) $2 \frac{3}{4}$  (i) $1 \frac{3}{8}$  (j) $2 \frac{1}{4}$
(k) $1 \frac{3}{10}$  (l) $2 \frac{1}{6}$  (m) $2 \frac{2}{7}$  (n) $5 \frac{1}{10}$  (o) $3 \frac{1}{11}$

Question 2:
(a) $\frac{11}{5}$  (b) $\frac{7}{2}$  (c) $\frac{7}{4}$  (d) $\frac{11}{3}$  (e) $\frac{7}{5}$
(f) $\frac{18}{7}$  (g) $\frac{4}{3}$  (h) $\frac{23}{10}$  (i) $\frac{19}{4}$  (j) $\frac{19}{12}$
(k) $\frac{39}{10}$  (l) $\frac{103}{50}$  (m) $\frac{29}{8}$  (n) $\frac{67}{8}$  (o) $\frac{23}{16}$

Question 2: $\frac{37}{7}$, $\frac{11}{2}$, $\frac{23}{4}$

Question 3: $3 \frac{1}{3}$

Question 4: $5 \frac{3}{5}$

Progress check

You should now complete quiz numbers 63 & 64 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

**Quiz 63**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
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</tr>
</thead>
</table>

**Quiz 64**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
<th>Date completed:</th>
</tr>
</thead>
</table>
Fractions of an amount

Key points

- To find a fraction of an amount, first divide the amount by the denominator to find the value of each equal part. E.g. find \( \frac{2}{5} \) of £40.
- First, we would do \( 40 \div 5 = £8 \).
- Then, as we are looking for two equal parts, we would do \( 2 \times £8 = £16 \).

Examples – Video tutorials

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below https://corbettmaths.com/2012/08/20/fractions-of-amounts/

Fraction of an amount

or click on the QR code to follow the hyperlink
Practice

Question 1: Work out each of the following

(a) \( \frac{1}{2} \) of 10  
(b) \( \frac{1}{3} \) of 18  
(c) \( \frac{1}{5} \) of 20  
(d) \( \frac{1}{4} \) of 24

Question 2: Work out each of the following

(a) \( \frac{2}{3} \) of 15  
(b) \( \frac{7}{10} \) of 20  
(c) \( \frac{2}{5} \) of 30  
(d) \( \frac{3}{4} \) of 32

Question 3: Work out each of the following. Include suitable units.

(a) \( \frac{1}{3} \) of £21  
(b) \( \frac{3}{4} \) of 100kg  
(c) \( \frac{2}{3} \) of 27cm  
(d) \( \frac{7}{8} \) of 32 seconds

(e) \( \frac{2}{5} \) of 90 miles  
(f) \( \frac{5}{6} \) of £150  
(g) \( \frac{5}{12} \) of 240ml  
(h) \( \frac{9}{10} \) of 310 students

Question 4: Work out each of the following.

(a) \( \frac{3}{10} \) of 32 miles  
(b) \( \frac{2}{5} \) of 9kg  
(c) \( \frac{1}{3} \) of 8 litres  
(d) \( \frac{3}{5} \) of £7

Extend

Question 3: There are 40 apples in a crate.
\( \frac{3}{5} \) of the apples are bad.

How many good apples are there?

Question 4: On Wednesday, James slept for \( \frac{3}{8} \) of the day

(a) How many hours did James spend sleeping?
(b) For how many hours was James awake?
(c) What fraction of the day was James awake?

Question 5: Declan won £6000 in a competition.
He invests \( \frac{2}{5} \) of the money.

How much money did Declan invest?
Answers

Question 1:
(a) 5 (b) 6 (c) 4 (d) 6

Question 2:
(a) 10 (b) 14 (c) 12 (d) 24

Question 3:
(a) £7 (b) 75kg (c) 18cm (d) 28 seconds
(e) 36 miles (f) £125 (g) 100ml (h) 279 students

Question 4:
(a) 9.6 miles (b) 3.6kg (c) 2.666... litres (d) £4.20

Question 3: 16 good apples
Question 4: (a) 9 hours (b) 15 hours (c) 5/8
Question 5: £2400

Progress check

You should now complete quiz number 77 on Hegarty Maths to show your teacher that you have understood this topic

Record your percentage score below:

Quiz 77

<table>
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<tr>
<th>Score:</th>
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</table>

35
Skills challenge 4
(Numeracy Ninjas)

Instructions
- Complete the 30 questions below. You have **20 minutes maximum**.
- Time yourself. See how long it takes you to complete all of the questions.
- Ask your parent or sibling to check your answers when you are finished.
- Record your score and time taken to complete all 30 questions below.

### Questions

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$4 + 1$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$66 + □ = 100$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What is half of 6?</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$122 - 10$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$56 + □ = 90$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$56 = 26 + □$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>$199 - 194$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$10 \times 5 = 50$, so $50 + 10 = □$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Write 2:15 pm in 24 hour clock format</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>From 15:09, how many minutes until 15:30?</td>
<td></td>
</tr>
</tbody>
</table>

### Scores

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>$9 \times 5 = □$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$60 + 6 = □$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$2 \times □ = 16$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$10 + □ = 1$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$9 \times 10 = □$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$12 + 2 = □$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>□ $\times 5 = 20$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>□ $\div 4 = 6$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>$8 \times 3 = □$</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>$18 + 6 = □$</td>
<td></td>
</tr>
</tbody>
</table>

Total out of 10

### Score

<table>
<thead>
<tr>
<th>Score:</th>
<th>/ 30</th>
</tr>
</thead>
</table>

### Time taken

| Time taken: | : |
Multiplying fractions

Key points

1. Multiply the numerators
2. Multiply the denominators
3. **Simplify** the answer if needed.

Example: $\dfrac{2}{3} \times \dfrac{6}{11} = \dfrac{12}{33}$

Examples – Video tutorials

CLIP NUMBER: 68

For Lesson 1 watch the video from 0.00 to 5.07

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below

Multiplying Fractions

*or click on the QR code to follow the hyperlink*
Practice

Question 1: Work out each of the following multiplications. Give each answer in its simplest form.

(a) \( \frac{1}{2} \times \frac{1}{5} \)  
(b) \( \frac{1}{4} \times \frac{3}{4} \)  
(c) \( \frac{1}{3} \times \frac{3}{5} \)  
(d) \( \frac{1}{3} \times \frac{1}{3} \)

(e) \( \frac{5}{6} \times \frac{1}{2} \)  
(f) \( \frac{3}{4} \times \frac{1}{4} \)  
(g) \( \frac{2}{3} \times \frac{1}{7} \)  
(h) \( \frac{5}{8} \times \frac{1}{3} \)

(i) \( \frac{2}{3} \times \frac{1}{2} \)  
(j) \( \frac{1}{3} \times \frac{3}{4} \)  
(k) \( \frac{3}{10} \times \frac{1}{2} \)  
(l) \( \frac{2}{5} \times \frac{1}{4} \)

(m) \( \frac{2}{7} \times \frac{3}{4} \)  
(n) \( \frac{5}{7} \times \frac{1}{10} \)  
(o) \( \frac{7}{12} \times \frac{2}{3} \)  
(p) \( \frac{6}{7} \times \frac{2}{3} \)

Extend

Question 3: Find the area of this rectangle. Include suitable units.

<table>
<thead>
<tr>
<th>9 cm</th>
<th>10 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cm</td>
<td></td>
</tr>
</tbody>
</table>

Question 5: Kelly spends \( \frac{1}{4} \) of her savings on driving lessons.

Kelly then spends \( \frac{2}{3} \) of her remaining savings on a new car.

What fraction of her savings has Kelly spent?

Question 8: Callum has completed his maths homework. Can you spot any mistakes?

Work out

\( \frac{1}{3} \times \frac{1}{6} \)

\( \frac{2}{18} = \frac{1}{9} \)
Answers

Question 1:

(a) $\frac{1}{10}$  (b) $\frac{3}{8}$  (c) $\frac{3}{20}$  (d) $\frac{1}{9}$

(e) $\frac{5}{12}$  (f) $\frac{3}{16}$  (g) $\frac{2}{21}$  (h) $\frac{5}{24}$

(i) $\frac{1}{2}$  (j) $\frac{1}{4}$  (k) $\frac{3}{20}$  (l) $\frac{1}{10}$

(m) $\frac{3}{14}$  (n) $\frac{1}{14}$  (o) $\frac{7}{18}$  (p) $\frac{4}{7}$

Question 3: $\frac{9}{40}\text{cm}^2$

Question 5: $\frac{3}{4}$
Multiplying fractions greater than one/mixed numbers

Key points

1. Convert each number to an improper fraction.
2. Multiply the numerators and then the denominators.
3. Convert the result back to a mixed number.

Example: \(1\frac{2}{3} \times 2\frac{1}{4}\)

\[
= \frac{5}{3} \times \frac{9}{4} = \frac{45}{12}
\]

\[
= 3\frac{9}{12} \text{ or } 3\frac{3}{4}
\]

Examples – Video tutorials

For Lesson 2 watch clip 68 from 5.07 to the end.
Watch the entire video for clip 69

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below

Multiplying Fractions

or click on the QR code to follow the hyperlink
Practice

Question 3: Work out the following divisions.
Give your answers as simplified fractions.
If any answers are top heavy fractions, write as mixed numbers.

(a) \( \frac{2}{3} \times \frac{1}{4} \)
(b) \( \frac{2}{5} \times 1 \frac{1}{4} \)
(c) \( \frac{1}{4} \times 3 \frac{1}{3} \)
(d) \( \frac{2}{3} \times 1 \frac{1}{4} \)
(i) \( \frac{5}{6} \times 2 \frac{1}{5} \)
(j) \( 1 \frac{1}{9} \times 3 \frac{3}{10} \)

Extend

Question 1: Work out
\( \frac{4}{5} \times \frac{1}{2} \times \frac{7}{8} \)

Question 7: A wall measures \( 3 \frac{3}{4} m \) by \( 4 \frac{1}{3} m \)
Each can of paint cover 2.5m\(^2\) and costs £5.50
Work out the cost of painting the wall.

Question 8: Callum has completed his maths homework.
Can you spot any mistakes?

Work out
\( 1 \frac{3}{10} \times 2 \frac{1}{2} \)
\[ \frac{13}{10} \times \frac{5}{2} = \frac{75}{20} \]
\[ 60 \frac{15}{20} \]
\[ 60 \frac{3}{4} \]
Answers

Question 3:

(a) \( \frac{5}{12} \)  
(b) \( \frac{1}{2} \)

(e) \( \frac{5}{6} \)  
(f) \( 2 \frac{1}{12} \)

(i) \( 6 \frac{2}{30} \)  
(j) \( 3 \frac{2}{3} \)

Question 1: \( 1 \frac{1}{20} \)

... 

Question 7: £38.50

Question 8:

\[ \begin{array}{c}
1 \frac{3}{10} \times 2 \frac{1}{2} \\
\frac{13}{10} \times \frac{5}{2} = \frac{75}{20} \Rightarrow 3 \frac{1}{20} = \frac{63}{20} = 3 \frac{3}{4}
\end{array} \]

Progress check

You should now complete quiz number 68 and 69 on Hegarty Maths to show your teacher that you have understood this topic

Record your percentage score below:

**Clip 68**

<table>
<thead>
<tr>
<th>Score:</th>
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<th>Date completed:</th>
</tr>
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</table>

**Clip 69**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
<th>Date completed:</th>
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</thead>
</table>
Skills challenge 5
(Numeracy Ninjas)

Instructions

- Complete the 30 questions below. You have **20 minutes maximum**.
- Time yourself. See how long it takes you to complete all of the questions.
- Ask your parent or sibling to check your answers when you are finished.
- Record your score and time taken to complete all 30 questions below.

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$\square + 12 = 20$</td>
<td>$\square$</td>
</tr>
<tr>
<td>2</td>
<td>What is double 94?</td>
<td>$\square$</td>
</tr>
<tr>
<td>3</td>
<td>$168 + 10$</td>
<td>$\square$</td>
</tr>
<tr>
<td>4</td>
<td>$45 - 20$</td>
<td>$\square$</td>
</tr>
<tr>
<td>5</td>
<td>$9 = 3 + \square$</td>
<td>$\square$</td>
</tr>
<tr>
<td>6</td>
<td>$14 - 6 = 14 - \square$</td>
<td>$\square$</td>
</tr>
<tr>
<td>7</td>
<td>$39 = 39 \times \square$</td>
<td>$\square$</td>
</tr>
<tr>
<td>8</td>
<td>Draw hands on the clock face showing 11:10 pm</td>
<td>$\square$</td>
</tr>
<tr>
<td>9</td>
<td>$63 - 10$</td>
<td>$\square$</td>
</tr>
<tr>
<td>10</td>
<td>$197 + 40$</td>
<td>$\square$</td>
</tr>
</tbody>
</table>

Total out of 10

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>What is the value of 4?</td>
<td>$\square$</td>
</tr>
<tr>
<td>2</td>
<td>$1/5 = 9/\square$</td>
<td>$\square$</td>
</tr>
<tr>
<td>3</td>
<td>$3903 + 6770$</td>
<td>$\square$</td>
</tr>
<tr>
<td>4</td>
<td>$(8 + 3) \times 5$</td>
<td>$\square$</td>
</tr>
<tr>
<td>5</td>
<td>Write 881034 in words. (Use the opposite page for your answer)</td>
<td>$\square$</td>
</tr>
<tr>
<td>6</td>
<td>$0.98 + 100$</td>
<td>$\square$</td>
</tr>
<tr>
<td>7</td>
<td>$(-5) \times (-8)$</td>
<td>$\square$</td>
</tr>
<tr>
<td>8</td>
<td>Round 6.5893 to 2 d.p.</td>
<td>$\square$</td>
</tr>
<tr>
<td>9</td>
<td>$5 + (-8)$</td>
<td>$\square$</td>
</tr>
<tr>
<td>10</td>
<td>Round 423 to 2 s.f.</td>
<td>$\square$</td>
</tr>
</tbody>
</table>

Total out of 10

Score: / 30

Time taken: :

---

43
Dividing Fractions

Key points

- The Reciprocal of a fraction is the inverse of the fraction. A fraction multiplied by its reciprocal will always equal 1.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Reciprocal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/5</td>
<td>5/3</td>
</tr>
</tbody>
</table>

- To divide a fraction by a fraction is the same as multiplying that fraction by the reciprocal of its divisor (the second fraction).

\[
E.g. \quad \frac{1}{2} \div \frac{4}{5} = \frac{1}{2} \times \frac{5}{4} = \frac{5}{8}
\]

- To divide a fraction by a whole number is the same as multiplying fraction by the reciprocal of the whole number.

<table>
<thead>
<tr>
<th>Number</th>
<th>Reciprocal</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1/5</td>
</tr>
</tbody>
</table>

Examples – Video tutorials

CLIP NUMBER: 71 and 70

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below

Dividing Fractions

or click on the QR code to follow the hyperlink
Practice

Question 1: Work out the following divisions.
Give your answers as simplified fractions.
If any answers are top heavy fractions, write as mixed numbers.

(a) $\frac{1}{5} \div \frac{2}{3}$  
(b) $\frac{3}{4} \div \frac{4}{5}$  
(c) $\frac{1}{10} \div \frac{4}{9}$  
(d) $\frac{6}{11} \div \frac{5}{6}$  
(e) $\frac{3}{5} \div \frac{1}{2}$  
(f) $\frac{7}{9} \div \frac{2}{3}$

Question 2: Work out the following divisions
Give your answers as simplified fractions.
If any answers are top heavy fractions, write as mixed numbers.

(a) $\frac{3}{4} \div 2$  
(b) $\frac{4}{7} \div 8$  
(c) $4 \div \frac{2}{3}$  
(d) $2 \div \frac{3}{4}$

Extend

Question 2: Work out

(a) $\frac{4}{5} \div \frac{3}{10} \div \frac{1}{8}$  
(b) $\frac{7}{9} + \frac{1}{2} \div \frac{3}{5}$

Question 3: James shares $\frac{5}{8}$ of a cake between 6 people.
What fraction of the cake do they each receive?

Question 4: John has 12 cans of dog food.
He has two dogs and he gives each dog $\frac{2}{3}$ of a can of dog food each day.
Does he have enough dog food to last one week?

Question 5: Alisha has $\frac{7}{8}$ litres of lemonade.
She is pouring glasses that each contain $\frac{1}{5}$ litres.
How many full glasses can she pour?
Answers

Question 1:
(a) $\frac{3}{10}$  
(b) $\frac{15}{16}$  
(e) $\frac{9}{40}$  
(f) $\frac{36}{55}$  
(i) $1\frac{1}{5}$  
(j) $1\frac{1}{6}$

Question 2:
(a) $\frac{3}{8}$  
(b) $\frac{1}{14}$  
(e) $6$  
(f) $\frac{2}{3}$

Question 3: $\frac{5}{48}$

Question 4: Yes, $\frac{2}{3} \times 7 \times 2 = 9\frac{1}{3}$

Question 5: 4

Progress check

You should now complete quiz number 70 and 71 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

**Clip 70**

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**Clip 71**

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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date completed:</th>
</tr>
</thead>
</table>
Dividing fractions greater than one/mixed numbers

Key points

- Change each **mixed number** to an improper **fraction**.
- Multiply by the reciprocal of the divisor, simplifying if possible.
- The divisor is the second fraction. It could also be a whole number in cases where the fraction is being divided by a whole number.
- Simplify the result (answer) if necessary.

Examples – Video tutorials

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below

Dividing Fractions

or click on the QR code to follow the hyperlink
Practice

Question 3: Work out the following divisions.
Give your answers as simplified fractions.
If any answers are top heavy fractions, write as mixed numbers.

(a) $\frac{2}{3} \div 1 \frac{4}{5}$  
(b) $1 \frac{1}{2} \div 1 \frac{9}{10}$  
(c) $2 \frac{3}{7} \div \frac{1}{2}$  
(d) $2 \frac{1}{3} \div 5 \frac{1}{2}$

Extend

Question 1: Work out the missing number

$$\frac{9}{11} \times \square = \frac{3}{4}$$

Question 6: Helen is cutting lengths of string from a roll that is $9 \frac{1}{3}$ metres long.
Each length of string is $\frac{1}{9}$ metres long.
How many lengths of string can Helen cut from the roll?

Question 7: Shown is a rectangle.
Find the value of $x$

Area = $20\text{cm}^2$

Question 8: Lee has completed his homework.
Can you spot any mistakes?

Work out:

$$\frac{2}{3} \div \frac{8}{11}$$

Give your answer as a fraction in its simplest form.

$$\frac{2}{3} \times \frac{8}{11} = \frac{16}{33}$$

Work out:

$$1 \frac{4}{7} \div 1 \frac{1}{4}$$

Give your answer as a mixed number.

$$\frac{11}{7} \div \frac{5}{4} = \frac{44}{35}$$
Answers

Question 3:
(a) \( \frac{10}{27} \)  
(b) \( \frac{15}{19} \)  
(c) \( \frac{6}{7} \)  
(d) \( \frac{14}{33} \)  
(e) \( \frac{7}{17} \)  
(f) \( \frac{43}{87} \)  
(g) \( \frac{5}{12} \)  
(h) \( \frac{187}{288} \)

Question 1: \( \frac{11}{12} \)

Question 6: 84

Question 7: \( 9\frac{3}{13} \)

Question 8:

Progress check

You should now complete quiz number 72 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

**Quiz 72**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
</tr>
</thead>
</table>

Date completed:
## Skills challenge 6

(Numeracy Ninjas)

**Instructions**

- Complete the 30 questions below. You have **20 minutes maximum**.
- Time yourself. See how long it takes you to complete all of the questions.
- Ask your parent or sibling to check your answers when you are finished.
- Record your score and time taken to complete all 30 questions below.

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$4 + \square = 5$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$31 + \square = 100$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What is half of 6?</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$20 - 10$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$84 + \square = 120$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$93 - 33 + \square$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>$423 - 418$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$8 \times 10 = 80$, so $80 \div 8 = \square$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Write 22:11 in 12 hour clock format</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>$12:25$ is how many minutes after 12:20?</td>
<td></td>
</tr>
</tbody>
</table>

**Total out of 10**

<table>
<thead>
<tr>
<th>Q</th>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$1 \times 5 = \square$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>$12 + 4 = \square$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>$10 \times \square = 70$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>$7 \div \square = 1$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>$7 \times 1 = \square$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>$2 + 2 = \square$</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>$\square \times 10 = 30$</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>$\square \div 3 = 3$</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>$9 \times 5 = \square$</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>$70 + 10 = \square$</td>
<td></td>
</tr>
</tbody>
</table>

**Total out of 10**

**Score:**  / 30

**Time taken:** :
Add or subtract fractions (same denominator)

Key points

- When we add or subtract fractions with the same denominator, we simply add the numerators together and keep the denominator the same.
- We are adding certain amounts of the same thing to each other – the denominators are like a unit.
- Be careful not to add the denominators as well.
- \( E.g. \frac{3}{11} + \frac{6}{11} = \frac{9}{11} \)

Examples – Video tutorials

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below https://corbettmaths.com/2013/02/15/adding-fractions-same-denominator/

Add/subtract fractions

or click on the QR code to follow the hyperlink
Practice

Question 2: Work out the following additions

(a) $\frac{1}{5} + \frac{1}{5}$  (b) $\frac{3}{11} + \frac{2}{11}$  (c) $\frac{1}{9} + \frac{7}{9}$  (d) $\frac{3}{7} + \frac{3}{7}$

(e) $\frac{6}{11} + \frac{2}{11}$  (f) $\frac{7}{13} + \frac{4}{13}$  (g) $\frac{3}{5} + \frac{1}{5}$  (h) $\frac{10}{21} + \frac{10}{21}$

Question 3: Work out the following subtractions

(a) $\frac{3}{5} - \frac{1}{5}$  (b) $\frac{6}{7} - \frac{2}{7}$  (c) $\frac{4}{5} - \frac{3}{5}$  (d) $\frac{7}{13} - \frac{1}{13}$

(e) $\frac{9}{11} - \frac{6}{11}$  (f) $\frac{16}{21} - \frac{8}{21}$  (g) $\frac{5}{6} - \frac{5}{6}$  (h) $\frac{16}{25} - \frac{9}{25}$

Question 4: Work out the following additions and subtractions. Simplify your answers if possible

(a) $\frac{1}{4} + \frac{1}{4}$  (b) $\frac{5}{6} - \frac{1}{6}$  (c) $\frac{3}{8} + \frac{3}{8}$  (d) $\frac{7}{10} - \frac{3}{10}$

Question 5: Work out the following additions. Write your answer as a mixed number.

(a) $\frac{2}{3} + \frac{2}{3}$  (b) $\frac{4}{5} + \frac{3}{5}$  (c) $\frac{7}{10} + \frac{4}{10}$  (d) $\frac{3}{8} + \frac{5}{8}$

Extend

Question 1: On Monday, James ate $\frac{1}{8}$ of a cake. On Tuesday, he ate $\frac{3}{8}$ of the same cake. In total, how much of the cake has James eaten?

Question 2: At a rugby match, $\frac{3}{5}$ of the crowd are male. What fraction of the crowd are female?

Question 3: In one season, a netball team won $\frac{4}{7}$ of their matches. They drew $\frac{2}{7}$ of their matches. What fraction of the matches did they lose?
Answers

Question 2:
(a) \( \frac{2}{5} \)  
(b) \( \frac{5}{11} \)  
(c) \( \frac{8}{9} \)  
(d) \( \frac{6}{7} \)  
(e) \( \frac{8}{11} \)  
(f) \( \frac{11}{13} \)  
(g) \( \frac{4}{5} \)  
(h) \( \frac{20}{21} \)

Question 3:
(a) \( \frac{2}{5} \)  
(b) \( \frac{4}{7} \)  
(c) \( \frac{1}{5} \)  
(d) \( \frac{6}{13} \)  
(e) \( \frac{3}{11} \)  
(f) \( \frac{8}{21} \)  
(g) 0  
(h) \( \frac{7}{25} \)

Question 4:
(a) \( \frac{1}{2} \)  
(b) \( \frac{2}{3} \)  
(c) \( \frac{3}{4} \)  
(d) \( \frac{2}{5} \)

Question 5:
(a) \( 1\frac{1}{3} \)  
(b) \( 1\frac{2}{5} \)  
(c) \( 1\frac{1}{10} \)  
(d) 1

Question 1: \( \frac{1}{2} \)

Question 2: \( \frac{2}{5} \)

Question 3: \( \frac{1}{7} \)

Progress check

You should now complete **quiz number 65** on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

**Quiz 65**

<table>
<thead>
<tr>
<th>Score:</th>
<th>%</th>
<th>Date completed:</th>
</tr>
</thead>
</table>


Add or subtract fractions (different denominator)

Key points

- When we add or subtract fractions with the same denominator, we first need to convert the fraction to have the same denominator. We do this by creating equivalent fractions.
- We can find the Lowest Common Multiple of the denominators to use as the denominator of our equivalent fractions.
- Then we simply add the new numerators together, keeping the denominator the same. Simplify if necessary.
- Remember **not** to add the denominators as well.

\[
E. \quad g \quad \frac{3}{7} + \frac{1}{3} = \frac{9}{21} + \frac{7}{21} = \frac{16}{21}
\]

OR

If you do not have access to Hegarty Maths, you can use the Corbett maths videos below
https://www.youtube.com/watch?v=lalcQLW6MWE

Add/subtract fractions

or click on the QR code to follow the hyperlink
Practice

Question 1: Work out the following additions and subtractions. Give your answers as simplified fractions.

(a) \( \frac{2}{5} + \frac{1}{2} \)  (b) \( \frac{2}{7} + \frac{1}{2} \)  (c) \( \frac{1}{3} + \frac{1}{2} \)  (d) \( \frac{4}{5} - \frac{2}{3} \)

(e) \( \frac{8}{9} - \frac{1}{3} \)  (f) \( \frac{2}{3} + \frac{1}{6} \)  (g) \( \frac{3}{10} + \frac{2}{5} \)  (h) \( \frac{3}{8} + \frac{1}{4} \)

(i) \( \frac{7}{15} - \frac{1}{5} \)  (j) \( \frac{3}{4} - \frac{2}{5} \)  (k) \( \frac{3}{10} + \frac{3}{8} \)  (l) \( \frac{2}{5} + \frac{4}{7} \)

Question 2: Work out the following additions. Give your answers as simplified fractions. If necessary, give any answers as mixed numbers.

(a) \( \frac{3}{4} + \frac{1}{2} \)  (b) \( \frac{5}{9} + \frac{2}{3} \)  (c) \( \frac{7}{10} + \frac{1}{3} \)  (d) \( \frac{4}{5} + \frac{3}{4} \)

Question 3: Work out the following additions and subtractions. Give your answers as simplified fractions. If necessary, give any answers as mixed numbers.

(a) \( 1\frac{1}{2} + \frac{2}{3} \)  (b) \( \frac{7}{9} + 1\frac{1}{3} \)  (c) \( 1\frac{3}{5} - \frac{3}{4} \)  (d) \( 1\frac{5}{8} - 1\frac{1}{4} \)

Extend

Question 2: This week Harry spent \( \frac{1}{2} \) of his pocket money on a ticket for a football match. He also spent \( \frac{1}{8} \) of his pocket money on a scarf at the match.

(a) What fraction of his pocket money has Harry spent?

(b) What fraction of his pocket money does Harry have left?

Question 3: On an airplane, the passengers may have chicken, vegetable or tomato soup. Half of the passengers choose chicken soup.
A third of the passengers choose tomato soup.

(a) What fraction of the passengers choose vegetable soup?

There are 240 passengers on the airplane.

(b) How many passengers choose vegetable soup?
Answers

Question 1:
(a) \(\frac{9}{10}\)  (b) \(\frac{11}{14}\)  (c) \(\frac{5}{6}\)  (d) \(\frac{2}{15}\)
(e) \(\frac{5}{9}\)  (f) \(\frac{5}{6}\)  (g) \(\frac{7}{10}\)  (h) \(\frac{5}{8}\)
(i) \(\frac{4}{15}\)  (j) \(\frac{7}{20}\)  (k) \(\frac{27}{40}\)  (l) \(\frac{34}{35}\)

Question 2:
(a) \(1\frac{1}{4}\)  (b) \(1\frac{2}{9}\)  (c) \(1\frac{1}{30}\)  (d) \(1\frac{11}{20}\)

Question 3:
(a) \(2\frac{1}{6}\)  (b) \(2\frac{1}{9}\)  (c) \(\frac{17}{20}\)  (d) \(\frac{3}{8}\)

Question 2: (a) \(\frac{5}{8}\)  (b) \(\frac{3}{8}\)

Question 3: (a) \(\frac{1}{6}\)  (b) 40

Progress check

You should now complete quiz number 66 on Hegarty Maths to show your teacher that you have understood this topic.

Record your percentage score below:

Quiz 66

<table>
<thead>
<tr>
<th>Score:</th>
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Skills challenge 7
(Numeracy Ninjas)

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<tbody>
<tr>
<td>1</td>
<td>$17 + \square = 20$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>2</td>
<td>What is double 36?</td>
<td>$\Box$</td>
</tr>
<tr>
<td>3</td>
<td>$89 + 10$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>4</td>
<td>$143 - 20$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>5</td>
<td>$5 + 4 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>6</td>
<td>$14 - 7 = 14 - 4$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>7</td>
<td>$56 + 56 = \square \times 56$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>8</td>
<td>Draw hands on the clock face showing 7:05 pm</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>What is double 9?</td>
<td>$\Box$</td>
</tr>
<tr>
<td>10</td>
<td>Halve 48</td>
<td>$\Box$</td>
</tr>
</tbody>
</table>

**Total out of 10**

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<thead>
<tr>
<th>Q</th>
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<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$5 \times 10 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>2</td>
<td>$18 + 6 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>3</td>
<td>$9 \times 9 = 63$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>4</td>
<td>$32 \div 4 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>5</td>
<td>$5 \times 9 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>6</td>
<td>$3 + 3 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>7</td>
<td>$\square \times 3 = 24$</td>
<td>$\Box$</td>
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<tr>
<td>8</td>
<td>$\square \div 3 = 10$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>9</td>
<td>$1 \times 3 = \square$</td>
<td>$\Box$</td>
</tr>
<tr>
<td>10</td>
<td>$10 + 5 = \square$</td>
<td>$\Box$</td>
</tr>
</tbody>
</table>

**Total out of 10**

Score: / 30  
Time taken: :