Name:

Maths Assessment Grade 6: Fractions

This assessment section is in two parts.

Section A

1. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
2. Compare and order fractions, including fractions > 1.
3. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
4. Multiply simple pairs of proper fractions, writing the answer in its simplest form.
5. Divide proper fractions by whole numbers.

Section B

1. Associate a fraction with division and calculate decimal fraction equivalents.
2. Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.
3. Multiply one-digit numbers with up to two decimal places by whole numbers.
4. Use written division methods in cases where the answer has up to two decimal places.
5. Solve problems which require answers to be rounded to specified degrees of accuracy.
6. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Name: Date:

/46 section A marks

/95 total marks

Maths Assessment Grade 6: Fractions - Section A

1. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.

a) Simplify these fractions:

$\frac{5}{20}$	
$\frac{6}{9}$	
$\frac{9}{12}$	
$\frac{4}{8}$	
$\frac{8}{10}$	

5 marks

b) Identify the equivalent fraction, using the denominators shown:

$\frac{2}{10}$	=	$\frac{\quad}{5}$
$\frac{2}{8}$	=	$\frac{\quad}{4}$
$\frac{9}{12}$	=	$\frac{\quad}{8}$
$\frac{5}{15}$	=	$\frac{\quad}{3}$
$\frac{10}{12}$	=	$\frac{\quad}{6}$

5 marks

2. Compare and order fractions, including fractions > 1.

a) Put these fractions in order, from smallest to largest:

$\frac{3}{4}$	$1\frac{3}{4}$	$\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$\frac{1}{2}$

smallest largest

$1\frac{1}{6}$	$1\frac{1}{3}$	$\frac{5}{6}$	$\frac{1}{6}$	$\frac{2}{3}$	$\frac{1}{3}$

smallest largest

2 marks

Total for this page

$\frac{1}{10}$	$\frac{3}{5}$	$\frac{4}{10}$	$\frac{4}{5}$	$\frac{1}{5}$	$\frac{5}{10}$

smallest largest

$\frac{4}{8}$	$\frac{3}{4}$	$\frac{12}{8}$	$\frac{5}{4}$	$\frac{9}{8}$	$\frac{4}{4}$

smallest largest

2 marks

b) Use the symbols < > or = to compare each pair of fractions:

	< > or =	
$\frac{1}{3}$		$\frac{4}{6}$
$\frac{3}{6}$		$\frac{1}{2}$
$\frac{3}{10}$		$\frac{1}{5}$
1 whole		$\frac{5}{5}$
$\frac{3}{4}$		$\frac{5}{8}$
$\frac{5}{6}$		$\frac{11}{12}$

6 marks

3. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

a) Complete these addition calculations. Write the answer in its simplest form, using mixed numbers where needed.

$\frac{4}{6} + \frac{4}{12} =$
$1\frac{3}{5} + \frac{6}{10} =$
$\frac{3}{4} + 1\frac{1}{2} =$
$\frac{1}{4} + 2\frac{1}{8} =$
$2\frac{3}{9} + \frac{7}{9} =$

5 marks

Total for this page

b) Complete these subtraction calculations. Write the answer in its simplest form, using mixed numbers where needed.

$\frac{3}{4} - \frac{1}{2} =$
$1\frac{1}{3} - \frac{2}{6} =$
$1\frac{1}{5} - \frac{3}{10} =$
$2\frac{4}{5} - 1\frac{2}{10} =$
$2\frac{3}{8} - \frac{1}{4} =$

5 marks

4. Multiply simple pairs of proper fractions, writing the answer in its simplest form.

a) Match up these calculations to their correct answer:

$\frac{2}{3} \times \frac{1}{2} =$	$\frac{1}{6}$
$\frac{1}{2} \times \frac{1}{3} =$	$\frac{1}{4}$
$\frac{1}{2} \times \frac{1}{4} =$	$\frac{1}{8}$
$\frac{6}{8} \times \frac{1}{3} =$	$\frac{1}{3}$

4 marks

b) Answer these calculations:

$\frac{1}{4} \times \frac{1}{2} =$
$\frac{1}{2} \times \frac{1}{3} =$
$\frac{1}{5} \times \frac{1}{2} =$
$\frac{2}{8} \times \frac{1}{2} =$

4 marks

5. Divide proper fractions by whole numbers.

a) Draw a line to match up each calculation to its correct answer:

$\frac{4}{6} \div 2 =$	$\frac{1}{8}$
$\frac{3}{4} \div 6 =$	$\frac{1}{3}$
$\frac{8}{10} \div 2 =$	$\frac{1}{4}$
$\frac{8}{8} \div 4 =$	$\frac{2}{5}$

4 marks

Total for this page

b) Answer these calculations:

$\frac{3}{4} \div 3 =$
$\frac{1}{4} \div 2 =$
$\frac{4}{6} \div 2 =$
$\frac{2}{3} \div 4 =$

4 marks

Total for this page

Name: Date:

/49
section B marks

Maths Assessment Grade 6: Fractions - Section B

1. Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.

a) Find $\frac{1}{4}$ **of 160**, showing the calculation(s) you would use:

.....

2 marks

b) Find $\frac{2}{3}$ **of 99**, showing the calculation(s) you would use:

.....

2 marks

c) Convert $\frac{5}{8}$ to a decimal:

1 mark

d) Convert 0.75 to a fraction, where the denominator is 12.

1 mark

2. Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.

a) In the numbers below, **circle the digit** that is worth the amount written in words:

42.443	Four tenths
824.887	Eight hundredths
971.977	Seven thousandths
56.545	Five tenths
2.262	Two thousandths

5 marks

Total for this page

b) Write the value of the digit that is underlined:

17.2<u>9</u>	
32.16<u>1</u>	
55.<u>3</u>24	
67.<u>1</u>3	
98.8<u>9</u>	

5 marks

c) Fill in the missing numbers in these calculations:

2.31	x		=	23 100
46	x	100	=	
4.46	x		=	446
	x	10	=	78.71
7.825	x	1 000	=	

5 marks

d) Fill in the missing numbers in these calculations:

	÷	10	=	1.54
429	÷	100	=	
	÷	1000	=	1.392
3988	÷	100	=	
8.67	÷		=	0.867

5 marks

Total for this page

3. Multiply one-digit numbers with up to two decimal places by whole numbers.

a) Calculate 13 x 7.8.

1 mark

b) Calculate 2.33 x 8.

1 mark

4. Use written division methods in cases where the answer has up to two decimal places.

a) Use a written method to calculate the answer to this. Show your working out.

238 ÷ 8 =

2 marks

b) Use a written method to calculate the answer to this. **Write the remainder as a decimal.** Show your working out.

357 ÷ 4 =

2 marks

Total for this page

5. Solve problems which require answers to be rounded to specified degrees of accuracy.

a) A baker has made 494 cakes which need to be packed into cake boxes. Each box can hold 6 cakes.

How many boxes are needed to hold all of the cakes?

2 marks

b) Asha is using ribbon for a craft project. She has 1.1 metres of fabric, which cuts into equal strips which each measure 10.5cm.

How many whole strips of fabric can she cut?

2 marks

c) Jacob is filling party bags with sweets for his birthday party. He has 233 sweets in total. He needs to put 20 sweets in each bag.

How many bags can he fill?

2 marks

d) Sophie is buying cakes to share with her friends at a picnic. She is going to give each friend 1/8 of a whole cake. There will be 20 people at the picnic in total.

How many cakes does Sophie need to buy?

2 marks

Total for this page

6. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

a) Fill in the missing information in this chart, to identify the equivalent fractions, decimals and percentages:

Fraction	Decimal	Percentage
$\frac{1}{4}$		25%
	0.5	50%
$\frac{3}{4}$	0.75	
$\frac{2}{5}$		40%
	0.2	20%
$\frac{2}{3}$	0.66	

6 marks

b) In a Year 6, three quarters of the children have hot dinners, and the rest have a packed lunch. What percentage of children has a packed lunch?

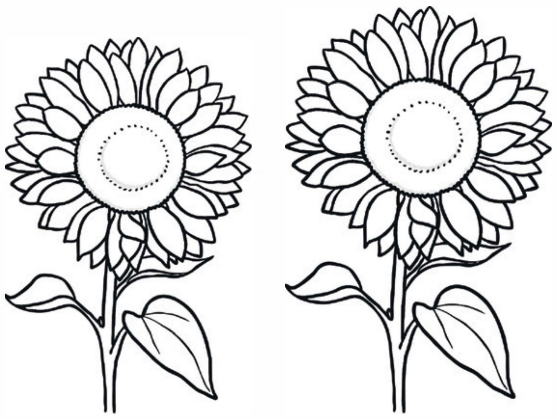
1 mark

c) In the supermarket, there is a special offer on pizza. The price is reduced by 0.1. What percentage of the original price will customers now pay?

1 mark

d) Jessica is growing sunflowers in her garden. **Sunflower A** is $\frac{4}{5}$ of the size of the **Sunflower B**.

How much smaller is **Sunflower A** than **Sunflower B**, as a percentage?



1 mark

Total for this page

Answer Sheet: Maths Assessment Grade 6: Fractions - Section A

<table>
<tr><th>question</th><th>answer</th><th>marks</th><th>notes</th></tr>
<tr><td colspan="4">1. Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.</td></tr>
<tr><td>a</td><td>
<table>
<tr><td>$\frac{5}{20}$</td><td>$\frac{1}{4}$</td></tr>
<tr><td>$\frac{6}{9}$</td><td>$\frac{2}{3}$</td></tr>
<tr><td>$\frac{9}{12}$</td><td>$\frac{3}{4}$</td></tr>
<tr><td>$\frac{4}{8}$</td><td>$\frac{1}{2}$</td></tr>
<tr><td>$\frac{8}{10}$</td><td>$\frac{4}{5}$</td></tr>
</table>
</td><td>5</td><td rowspan="2">Award one mark for each correct answer.</td></tr>
<tr><td>b</td><td>
<table>
<tr><td>$\frac{2}{10}$</td><td>=</td><td>$\frac{1}{5}$</td></tr>
<tr><td>$\frac{2}{8}$</td><td>=</td><td>$\frac{1}{4}$</td></tr>
<tr><td>$\frac{9}{12}$</td><td>=</td><td>$\frac{6}{8}$</td></tr>
<tr><td>$\frac{5}{15}$</td><td>=</td><td>$\frac{1}{3}$</td></tr>
<tr><td>$\frac{10}{12}$</td><td>=</td><td>$\frac{5}{6}$</td></tr>
</table>
</td><td>5</td></tr>
<tr><td colspan="4">2. Compare and order fractions, including fractions > 1.</td></tr>
<tr><td></td><td>
<table>
<tr><td>$\frac{1}{4}$</td><td>$\frac{1}{2}$</td><td>$\frac{3}{4}$</td><td>$1\frac{1}{4}$</td><td>$1\frac{1}{2}$</td><td>$1\frac{3}{4}$</td></tr>
<tr><td>smallest</td><td></td><td></td><td></td><td></td><td>largest</td></tr>
<tr><td>$\frac{1}{6}$</td><td>$\frac{1}{3}$</td><td>$\frac{2}{3}$</td><td>$\frac{5}{6}$</td><td>$1\frac{1}{6}$</td><td>$1\frac{1}{3}$</td></tr>
<tr><td>smallest</td><td></td><td></td><td></td><td></td><td>largest</td></tr>
<tr><td>$\frac{1}{10}$</td><td>$\frac{1}{5}$</td><td>$\frac{4}{10}$</td><td>$\frac{5}{10}$</td><td>$\frac{3}{5}$</td><td>$\frac{4}{5}$</td></tr>
<tr><td>smallest</td><td></td><td></td><td></td><td></td><td>largest</td></tr>
<tr><td>$\frac{4}{8}$</td><td>$\frac{3}{4}$</td><td>$\frac{4}{4}$</td><td>$\frac{9}{8}$</td><td>$\frac{5}{4}$</td><td>$\frac{12}{8}$</td></tr>
<tr><td>smallest</td><td></td><td></td><td></td><td></td><td>largest</td></tr>
</table>
</td><td>4</td><td>Award one mark for each set of fractions correctly ordered.</td></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>< > or =</td><td></td></tr>
<tr><td>$\frac{1}{3}$</td><td><</td><td>$\frac{4}{6}$</td></tr>
<tr><td>$\frac{3}{6}$</td><td>=</td><td>$\frac{1}{2}$</td></tr>
<tr><td>$\frac{3}{10}$</td><td>></td><td>$\frac{1}{5}$</td></tr>
<tr><td>1 whole</td><td>=</td><td>$\frac{5}{5}$</td></tr>
<tr><td>$\frac{3}{4}$</td><td>></td><td>$\frac{5}{8}$</td></tr>
<tr><td>$\frac{5}{6}$</td><td><</td><td>$\frac{11}{12}$</td></tr>
</table>
</td><td>6</td><td>Award one mark for each correct symbol.</td></tr>
</table>

question	answer	marks	notes
3. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.			
a	$\frac{4}{6} + \frac{4}{12} = 1$ whole (also accept 1) $1\frac{3}{5} + \frac{6}{10} = 2\frac{1}{5}$ $\frac{3}{4} + 1\frac{1}{2} = 2\frac{1}{4}$ $\frac{1}{4} + 2\frac{1}{8} = 2\frac{3}{8}$ $2\frac{3}{9} + \frac{7}{9} = 3\frac{1}{9}$	5	Award one mark for each correct answer.
b	$\frac{3}{4} - \frac{1}{2} = \frac{1}{4}$ $1\frac{1}{3} - \frac{2}{6} = 1$ whole (also accept 1) $1\frac{1}{5} - \frac{3}{10} = \frac{9}{10}$ $2\frac{4}{5} - 1\frac{2}{10} = 1\frac{3}{5}$ $2\frac{3}{8} - \frac{1}{4} = 2\frac{1}{8}$	5	
4. Multiply simple pairs of proper fractions, writing the answer in its simplest form.			
a	$\frac{2}{3} \times \frac{1}{2} =$ $\frac{1}{6}$ $\frac{1}{2} \times \frac{1}{3} =$ $\frac{1}{4}$ $\frac{1}{2} \times \frac{1}{4} =$ $\frac{1}{8}$ $\frac{6}{8} \times \frac{1}{3} =$ $\frac{1}{3}$	4	Award one mark for each correct match.
b	$\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$ $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$ $\frac{1}{5} \times \frac{1}{2} = \frac{1}{10}$ $\frac{2}{8} \times \frac{1}{2} = \frac{1}{8}$	4	Award one mark for each correct answer.
5. Divide proper fractions by whole numbers.			
a	$\frac{4}{6} \div 2 =$ $\frac{1}{8}$ $\frac{3}{4} \div 6 =$ $\frac{1}{3}$ $\frac{8}{10} \div 2 =$ $\frac{1}{4}$ $\frac{8}{8} \div 4 =$ $\frac{2}{5}$	4	Award one mark for each pair of fractions correctly matched.
b	$\frac{3}{4} \div 3 = \frac{1}{4}$ $\frac{1}{4} \div 2 = \frac{1}{8}$ $\frac{4}{6} \div 2 = \frac{1}{3}$ $\frac{2}{3} \div 4 = \frac{1}{6}$	4	Award one mark for each correct answer.
	Section A Total:	46	

Answer Sheet: Maths Assessment Grade 6: Fractions - Section B

<table>
<tr><th>question</th><th>answer</th><th>marks</th><th>notes</th></tr>
<tr><td colspan="4">1. Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.</td></tr>
<tr><td>a</td><td>160 ÷ 4 = 40</td><td>2</td><td rowspan="2">Award two marks for a correct answer. Award one mark for a correct method, but incorrect answer.</td></tr>
<tr><td>b</td><td>99 ÷ 3 = 33
33 x 2 = 66</td><td>2</td></tr>
<tr><td>c</td><td>0.625</td><td>1</td><td></td></tr>
<tr><td>d</td><td>$\frac{9}{12}$</td><td>1</td><td></td></tr>
<tr><td colspan="4">2. Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.</td></tr>
<tr><td>a</td><td>
<table>
<tr><td>42(4)43</td><td>Four tenths</td></tr>
<tr><td>824.8(8)7</td><td>Eight hundredths</td></tr>
<tr><td>971.97(7)</td><td>Seven thousandths</td></tr>
<tr><td>56(5)45</td><td>Five tenths</td></tr>
<tr><td>2.26(2)</td><td>Two thousandths</td></tr>
</table>
</td><td>5</td><td>Award one mark for each digit correctly identified.</td></tr>
<tr><td>b</td><td>
<table>
<tr><td>17.2<u>9</u></td><td>Nine hundredths</td></tr>
<tr><td>32.16<u>1</u></td><td>One thousandth</td></tr>
<tr><td>55.<u>3</u>24</td><td>Three tenths</td></tr>
<tr><td>67.<u>1</u>3</td><td>One tenth</td></tr>
<tr><td>98.8<u>9</u></td><td>Nine hundredths</td></tr>
</table>
</td><td>5</td><td>Accept numbers written as words or numerals (e.g. nine or 9). Do not accept tens, hundreds or thousands in place of tenths, hundredths or thousandths.</td></tr>
<tr><td>c</td><td>
<table>
<tr><td>2.31</td><td>x</td><td>10 000</td><td>=</td><td>23 100</td></tr>
<tr><td>46</td><td>x</td><td>100</td><td>=</td><td>4 600</td></tr>
<tr><td>4.46</td><td>x</td><td>100</td><td>=</td><td>446</td></tr>
<tr><td>7.871</td><td>x</td><td>10</td><td>=</td><td>78.71</td></tr>
<tr><td>7.825</td><td>x</td><td>1 000</td><td>=</td><td>7 825</td></tr>
</table>
</td><td>5</td><td rowspan="2">Award one mark for each box correctly filled.</td></tr>
<tr><td>d</td><td>
<table>
<tr><td>15.4</td><td>÷</td><td>10</td><td>=</td><td>1.54</td></tr>
<tr><td>429</td><td>÷</td><td>100</td><td>=</td><td>4.29</td></tr>
<tr><td>1392</td><td>÷</td><td>1000</td><td>=</td><td>1.392</td></tr>
<tr><td>3988</td><td>÷</td><td>100</td><td>=</td><td>39.88</td></tr>
<tr><td>8.67</td><td>÷</td><td>10</td><td>=</td><td>0.867</td></tr>
</table>
</td><td>5</td></tr>
</table>

<table>
<tr><th>question</th><th>answer</th><th>marks</th><th>notes</th></tr>
<tr><td colspan="4">3. Multiply one-digit numbers with up to two decimal places by whole numbers.</td></tr>
<tr><td>a</td><td>101.4</td><td>1</td><td></td></tr>
<tr><td>b</td><td>18.64</td><td>1</td><td></td></tr>
<tr><td colspan="4">4. Use written division methods in cases where the answer has up to two decimal places.</td></tr>
<tr><td>a</td><td>29 r 6 or 29.75</td><td>2</td><td>Award two marks for a correct answer. Award one mark for evidence of a correct calculation, but incorrect answer.</td></tr>
<tr><td>b</td><td>89.25</td><td>2</td><td>Award two marks for a correct answer. Award one mark for evidence of a correct calculation, but incorrect answer.Do not accept answers where the remainder has not been written as a decimal.</td></tr>
<tr><td colspan="4">5. Solve problems which require answers to be rounded to specified degrees of accuracy.</td></tr>
<tr><td>a</td><td>83 boxes</td><td>2</td><td rowspan="4">Award two marks for a correct answer. Award one mark for evidence of a correct calculation, but incorrect answer.</td></tr>
<tr><td>b</td><td>10 pieces of fabric</td><td>2</td></tr>
<tr><td>c</td><td>11 bags</td><td>2</td></tr>
<tr><td>d</td><td>3 cakes</td><td>2</td></tr>
<tr><td colspan="4">6. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</td></tr>
<tr><td>a</td><td><table><tr><th>Fraction</th><th>Decimal</th><th>Percentage</th></tr><tr><td>$\frac{1}{4}$</td><td>0.25</td><td>25%</td></tr><tr><td>$\frac{1}{2}$</td><td>0.5</td><td>50%</td></tr><tr><td>$\frac{3}{4}$</td><td>0.75</td><td>75%</td></tr><tr><td>$\frac{2}{5}$</td><td>0.4</td><td>40%</td></tr><tr><td>$\frac{2}{10}$ or $\frac{1}{5}$</td><td>0.2</td><td>20%</td></tr><tr><td>$\frac{2}{3}$</td><td>0.66</td><td>66%</td></tr></table></td><td>6</td><td>Award one mark for each box correctly completed.</td></tr>
<tr><td>b</td><td>25%</td><td>1</td><td></td></tr>
<tr><td>c</td><td>90%</td><td>1</td><td></td></tr>
<tr><td>d</td><td>20%</td><td>1</td><td></td></tr>
<tr><td colspan="2">Section B Total:</td><td>49</td><td></td></tr>
<tr><td colspan="2">Overall Total:</td><td>95</td><td></td></tr>
</table>