

High School Mathematics Test 2013

Year
8

Rational Numbers

Non Calculator
Section

Skills and Knowledge Assessed:

- Connect fractions, decimals and percentages and carry out simple conversions (ACMNA157)
- Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)
- Investigate terminating and recurring decimals (ACMNA184)

Name _____

Answer all questions in the spaces provided on this test paper by:

Writing the answer in the box provided.

or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper.

1. What is the simplest form of the fraction $\frac{24}{32}$?

$\frac{2}{3}$
☐

$\frac{3}{4}$
☐

$\frac{6}{8}$
☐

$\frac{12}{16}$
☐

2. What fraction is halfway between $\frac{2}{5}$ and $\frac{3}{5}$?

3. What is the sum of $\frac{2}{3}$ and $\frac{5}{6}$?

4. $\frac{3}{8} \times \frac{4}{5} = ?$

5. Which number is greater than 0.075?

0.0405
☐

0.07
☐

0.074
☐

0.08
☐

6. What is the value of $0.6 - 0.24$?

--

7. $0.024 \times 0.7 = ?$

0.001 68
☐

0.016 8
☐

0.168
☐

1.68
☐

8. When 128.485 95 is rounded to the nearest hundredth, the result is:

128.5
☐

128.48
☐

128.49
☐

128.486
☐

9. A recurring decimal is written as $0.2\dot{8}\dot{6}$.
The decimal could also be written as:

0.286286286...
☐

0.2868686....
☐

0.28666666...
☐

0.268686868...
☐

10. Write $\frac{7}{25}$ as a decimal.

11. Which fraction is equal to 0.06 ?

$\frac{3}{500}$
☐

$\frac{3}{50}$
☐

$\frac{3}{200}$
☐

$\frac{3}{20}$
☐

12. What is 35% of \$420.00?

13. Luke has 45 of his paintings displayed in a gallery which has 250 paintings on display.
What percentage of the paintings on display are by Luke?

14. Increase 650 kg by 30%.

15. Rewrite the following numbers in the spaces provided, in ascending order.

85%, $\frac{3}{4}$, 0.8, $\frac{18}{25}$

16. Which decimal is equal to $\frac{7}{11}$?

$0.6\dot{3}$
☐

$0.\dot{6}\dot{3}$
☐

$0.\dot{7}$
☐

1.57
☐

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Rational Numbers

Calculator Allowed
Short Answer
Section

Name _____

Answer all questions in the spaces provided on this test paper by:

Writing the answer in the box provided.

or

Shading in the bubble for the correct answer from the four choices provided.

Show any working out on the test paper.

Calculators are allowed for this section.

1. Write two fractions which are equivalent to $\frac{9}{12}$.

<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

2. In a car park there are 50 vehicles and $\frac{3}{5}$ of them are sedans.

How many sedans are there in the car park?

15
☐

20
☐

30
☐

45
☐

3. Which fraction has the same value as $3\frac{2}{5}$?

$\frac{7}{5}$
☐

$\frac{12}{5}$
☐

$\frac{17}{5}$
☐

$\frac{32}{5}$
☐

4. Which set of fractions in in order from smallest to largest?

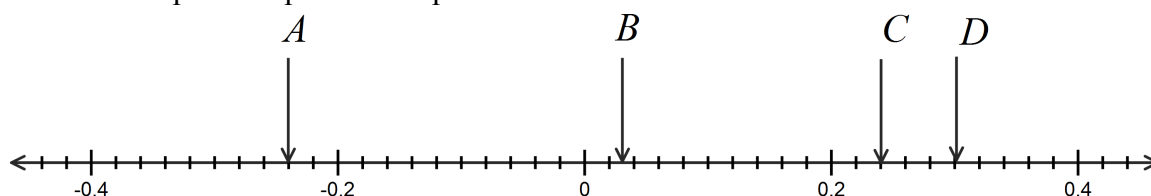
☐ $\frac{2}{3}, \frac{1}{2}, \frac{3}{4}, \frac{1}{6}, \frac{3}{8}$

☐ $\frac{1}{6}, \frac{2}{3}, \frac{1}{2}, \frac{3}{4}, \frac{3}{8}$

☐ $\frac{1}{6}, \frac{3}{8}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4},$

☐ $\frac{1}{6}, \frac{3}{8}, \frac{2}{3}, \frac{1}{2}, \frac{3}{4},$

5. Which of the points represent the position of 0.24 on the number line?

Point *A*☐Point *B*☐Point *C*☐Point *D*☐

6. Write the numbers 2.1 , 1.2 , 0.21 , 0.021 , 0.012 in order from smallest to largest.

7. A toolbox has a mass of 1.2 kg.
There are four tools in the toolbox whose masses are 1.8 kg, 0.25 kg, 2.6 kg and 0.65 kg.
What is the total mass of the toolbox and the tools?

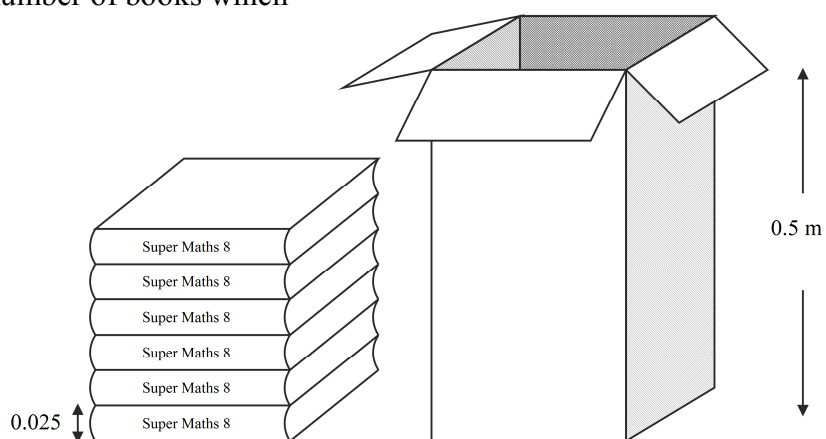
8. Annabelle stacks books to fit into a carton which is 0.5 m deep.
Each book is 0.025m thick.
Which calculation gives the number of books which would fit into the carton?

☐ 0.5×0.025

☐ $0.025 \div 0.5$

☐ $0.5 \div 0.025$

☐ $0.5 - 0.025$



9. Which statement is correct?

$\frac{2}{3} < 0.6$

☐

$\frac{2}{3} \neq 0.\dot{6}$

☐

$\frac{2}{3} > 0.7$

☐

$\frac{2}{3} < 0.8$

☐

-
10. Which of the following is not equivalent to 12%?

0.12

☐

$\frac{24}{200}$

☐

$\frac{8}{50}$

☐

$\frac{3}{25}$

☐

-
11. Paul puts 32% of the \$560 that he receives for working on Saturday into the bank. How much does Paul put in the bank?

-
12. Sean is an architect who has designed 8 eco-houses. These eco-house designs make up 32% of all his house designs. How many houses has he designed altogether?

-
13. Mrs Keen asks four of her students; "*What part of an hour is 24 minutes?*" Which of the answers below is incorrect?

☐

"It is 40% of an hour."

☐

"It is 0.4 of an hour."

☐

"It is $\frac{2}{5}$ of an hour."

☐

"It is 35% of an hour."

-
14. Write the next two numbers in the pattern below.

$$\frac{1}{5}, \frac{9}{20}, \frac{7}{10}, \frac{\boxed{}}{\boxed{}}, \frac{\boxed{}}{\boxed{}}$$

-
15. Madalyn and her friends compare marks on a maths test which had 40 questions worth one mark each.
To make them think that the teacher has written their marks in different ways.
Who got the most questions correct?

☐

Madalyn answered $\frac{3}{4}$ of the questions correctly.

☐

Jess answered $77\frac{10}{2}\%$ of the questions correctly.

☐

Sophie had 0.225 of the questions incorrect.

☐

Lydia had $\frac{1}{5}$ of the questions wrong.

-
16. Write $\frac{29}{90}$ as a recurring decimal.

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Rational Numbers

**Calculator Allowed
Connected Answer
Section**

Name _____

Write all working and answers in the spaces provided on this test paper.

Marks

1. Dannie is making scones using the recipe below.

SCONES

$\frac{1}{2}$ cup of self-raising flour

$\frac{1}{2}$ cup of plain flour

$\frac{1}{3}$ cup of margarine

$\frac{1}{4}$ cup of sugar

$\frac{2}{3}$ cup of milk

MAKES 12 SCONES

- (a) How many cups of ingredients are there in the recipe altogether? **1**

.....
.....

- (b) What fraction of the entire recipe is made up of margarine? **2**

.....
.....

- (c) Dannie wants to make 60 scones for the school fete. How much milk will she need? **1**

.....
.....

Marks

2. Joe is travelling in NZ, in a rented 4WD.

- (a) He fills the tank with fuel before setting out on a day's travel. **2**
The fuel is advertised as 172.5 cents per litre.
He puts 92.8 litres of fuel in the 4WD.
What is the cost (in dollars, to the nearest 5 cents) of the fuel?

.....

.....

- (b) During the day he stops and buys some gifts worth \$124 before GST. **1**
In NZ the GST rate is 15%.
What is the cost of the gifts including GST?

.....

.....

- (c) On one section of the trip he comes to a road tunnel which says the tunnels **1**
roof is 2.6 metres high.
The 4WD is 1.445 metres high and has a 1.24 metre long aerial on its roof.
Will the top of the aerial be above or below the tunnel roof and by how
much?

.....

.....

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Rational Numbers

ANSWERS

Non Calculator Section

1.	$\frac{3}{4}$
2.	Between $\frac{4}{10}$ and $\frac{6}{10} = \frac{5}{10} = \frac{1}{2}$
3.	$\frac{2}{3} + \frac{5}{6} = \frac{4}{6} + \frac{5}{6} = \frac{9}{6} = 1\frac{1}{2}$
4.	$\frac{3}{8} \times \frac{4}{5} = \frac{12}{40} = \frac{3}{10}$
5.	0.08
6.	0.36
7.	0.016 8
8.	128.49

9.	0.2868686....
10.	0.28
11.	$\frac{3}{50}$
12.	\$147.00
13.	18%
14.	845 kg.
15.	$\frac{18}{25}, \frac{3}{4}, 0.8, 85\%$
16.	$0.\dot{6}\dot{3}$

Calculator Allowed Section

1.	Any two of $\frac{3}{4}, \frac{6}{8}, \frac{15}{20}, \frac{18}{24}$ etc
2.	30
3.	$\frac{17}{5}$
4.	$\frac{1}{6}, \frac{3}{8}, \frac{1}{2}, \frac{2}{3}, \frac{3}{4},$
5.	Point C
6.	0.012, 0.021, 0.21, 1.2, 2.1
7.	6.5
8.	$0.5 \div 0.025$
9.	$\frac{2}{3} < 0.8$

10.	$\frac{8}{50}$
11.	\$179.20
12.	25 houses.
13.	"It is 35% of an hour."
14.	$\frac{19}{20}, \frac{24}{20} = \frac{6}{5} \left(1\frac{1}{5}\right)$
15.	Lydia with 32 correct.
16.	$0.3\dot{2}$

Calculator Allowed Connected Answer Section		
1.	(a) $\frac{1}{2} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{2}{3} = 2\frac{1}{4}$ cups	1
	(b) $\frac{1}{3}$ of a cup out of $2\frac{1}{4}$ cups. $\frac{4}{12}$ of a cup out of $\frac{27}{4}$ cups. Fraction is $\frac{4}{27}$	2
	(c) 60 scones is 5 lots of the recipe Amount of milk = $\frac{2}{3} \times 5$ $= \frac{10}{3} = 3\frac{1}{3}$ cups of milk.	1
2.	(a) Cost = $172.5 \times 92.8 = 16008$ cents $= \$160.08$ $= \$160.10$ (nearest 5 cents)	2 (1 for rounding)
	(b) Cost inc GST = 124×1.15 $\$142.60$	1
	(d) Height of 4WD and aerial = $1.445 + 1.24 = 2.685$ It will be above the roof by $2.685 - 2.6 = 0.085$ metres.	1