School Name
Mathematics Test 2017

Year 9   *Basic Number Skills*   **Non Calculator**

Skills and Knowledge Assessed:
- 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)
- Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies (ACMNA187)

Name_____

Section 1   Short Answer Section

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

1.	$423 \times 3 = ?$

....

....

2.	$427 + 356 + 939 = ?$

....

....

3.	$1254 - 397 = ?$

....

....

4.	$567 \div 3 = ?$

....

....

5.	$(-6)^2 =$

....

6.	$11 - (-7) =$
	....
7.	$\dfrac{4}{5} \times \dfrac{2}{3} = ?$
	....
8.	What is 40% of 80?
	....
	....
9.	What is $\dfrac{15}{25}$ in simplest form?
	....
10.	There are 24 animals on a hobby farm. Ten of the animals are sheep. What fraction of the animals are sheep?
	....
	....
11.	$2.48 \times 5 = ?$
	....
	....
12.	$(24 - 31) \times (-5) = ?$
	....
	....
13.	$\dfrac{2}{3} + \dfrac{1}{5} = ?$
	....
	....

14.	$0.06 \times 0.15 = ?$
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………
15.	What is a score of 25 out of 40 as a percentage?
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………
16.	$\dfrac{-32}{-12 + (-4)} = ?$
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………
17.	$\dfrac{17}{25} - \dfrac{3}{10} = ?$
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………
18.	$0.0261 \div 3 =$
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………
19.	What is 0.648 when written as a fraction in simplest form?
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………
20.	What is $\dfrac{5}{8}$ of 72?
	……………………………………………………………………………………….......
	…………………………………………………………………………………………………

21.	There are 80 000 people in the audience at concert.
	There are 24 000 females in the audience.
	What percentage of the audience is male?
	……………………………………………………………………………………………....
	……………………………………………………………………………………………………

22.	$\dfrac{5}{8} \div \dfrac{3}{4} = ?$
	……………………………………………………………………………………………....
	……………………………………………………………………………………………………

23.	$3\frac{3}{4} - 1\frac{2}{3} = ?$
	……………………………………………………………………………………………....
	……………………………………………………………………………………………………

24.	Decrease one hour and twenty minutes by 5%.
	……………………………………………………………………………………………....
	……………………………………………………………………………………………………

25.	$\dfrac{\sqrt[3]{27} \times 4^2}{2^4 \times \sqrt{81}} = ?$
	……………………………………………………………………………………………....
	……………………………………………………………………………………………………

Year 9   *Basic Number Skills*

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Section 2   Multiple Choice Section

Mark all your answers on the accompanying multiple choice answer sheet, not on this test paper. You may do any working out on this test paper. Calculators are allowed for this section.

1.	What is the value of the 6 digit in the decimal number 0.0625? A. ten thousandths B. thousandths C. hundredths D. tenths
2.	Which is the largest? A. $\dfrac{4}{5}$ B. $\dfrac{3}{4}$ C. $\dfrac{18}{25}$ D. $\dfrac{17}{20}$
3.	What is 0.36 when written as a fraction in simplest form? A. $\dfrac{4}{25}$ B. $\dfrac{9}{25}$ C. $\dfrac{8}{25}$ D. $\dfrac{9}{20}$
4.	Which fraction is **not** equivalent to $\dfrac{5}{6}$? A. $\dfrac{20}{25}$ B. $\dfrac{10}{12}$ C. $\dfrac{20}{24}$ D. $\dfrac{30}{36}$
5.	What is 15% of 80 kg? A. 9 kg B. 10 kg C. 12 kg D. 15 kg
6.	What decimal number is the same as 8%? A. 0.008 B. 0.08 C. 0.8 D. 8.0
7.	What is 37.5% of 128 ? A. 48 B. 54 C. 56 D. 64

8.	Write the fraction $\dfrac{29}{40}$ as a percentage. A. $62\frac{1}{2}\%$ B. $65\frac{1}{2}\%$ C. $68\frac{1}{2}\%$ D. $72\frac{1}{2}\%$
9.	Increase 250 metres by 20%. A. 270 metres B. 290 metres C. 300 metres D. 350 metres
10.	Evaluate $\dfrac{-8 \times -10}{-16 + 11}$. A. -16 B. -3 C. $\dfrac{1}{3}$ D. 16
11.	Which number indicates the part of the figure which is shaded? A. 0.6 B. $56\frac{1}{2}\%$ C. $\dfrac{3}{5}$ D. $62\frac{1}{2}\%$
12.	Which set of fractions is in ascending order? A. $\dfrac{2}{3}, \dfrac{5}{6}, \dfrac{1}{2}, \dfrac{1}{3}$ B. $\dfrac{1}{3}, \dfrac{1}{2}, \dfrac{2}{3}, \dfrac{5}{6}$ C. $\dfrac{5}{6}, \dfrac{1}{2}, \dfrac{1}{3}, \dfrac{2}{3}$ D. $\dfrac{1}{2}, \dfrac{1}{3}, \dfrac{2}{3}, \dfrac{5}{6}$
13.	In a card game, Mitchell started with zero points and then scored the points below on the first 5 rounds.
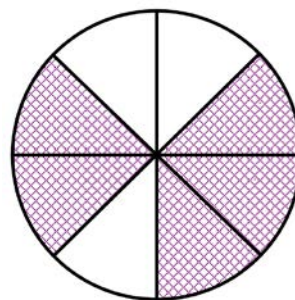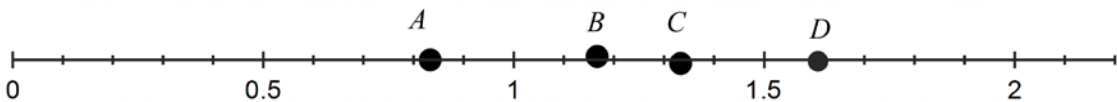
Round	1	2	3	4	5
Points Scored	100	–40	80	–200	–60

What was his score after these rounds?

A. –180   B. –140   C. –120   D. –80

14.

$$\frac{9}{40} = ?$$

    A.   0.225   B.   27.5%   C. 0.285   D. 29.5%

15. A store buys shirts for $30 and sells them $48.

What is the percentage profit on the cost price

    A. 54%   B. 60%   C. 62.5%   D. 65%

16. Which of the points represent the position of $1\frac{1}{3}$ on the number line?

    A. Point A B. Point B C. Point C D. Point D

17. While working during summer, Cody's weight went from 60 kg to 55 kg.

What was the percentage decrease in his weight?

    A. 5%   B. $7\frac{1}{4}\%$ C. $7\frac{1}{2}\%$ D. $8\frac{1}{3}\%$

18. Which statement is **NOT** true?

    A. $0.125 = \frac{1}{8}$ B. $0.125 < \frac{1}{4}$ C. $0.125 = 12.5\%$ D. $0.125 < 11\frac{1}{2}\%$

19. Re-write this list in ascending order.

$41\%, \ 0.39, \ 0.4, \ \frac{19}{50}.$

    A. $\frac{19}{50}, \ 0.39, \ 0.4, \ 41\%$ B. $0.4, \ \frac{19}{50}, \ 0.39, \ 41\%$

    C. $0.4, \ 0.39, \ \frac{19}{50}, \ 41\%$ D. $0.4, \ 0.39, \ 41\%, \ \frac{19}{50}$

20. What is $\frac{7}{15}$ when written as a decimal?

    A. $0.4\overset{..}{6}$ B. $0.4\dot{6}$ C. $0.41\dot{6}$ D. $0.64\dot{6}$

21. If $\dfrac{2}{5}$ of a group of people is 48 people, what is $\dfrac{3}{4}$ of the same group?

A.   72 people   B.   80 people   C.   90 people   D.   96 people

22. Which fraction can be written as $0.7\dot{4}$?

A. $\dfrac{37}{50}$ B. $\dfrac{67}{90}$ C. $\dfrac{8}{11}$ D. $\dfrac{74}{99}$

23. Martha runs a shop and buys a surfboard for $280 and adds a profit margin of 45%.

She then adds 10% GST to obtain the selling price of the surfboard.

What is the selling price?

A. $335.00   B. $434.00   C. $454.20   D. $446.60

24. Jerry drives a truck which can hold 75.5 cubic metres of topsoil.

The topsoil weighs 0.65 tonnes per cubic metre.

If the truck itself weighs 4.25 tonnes, what is the weight of the loaded truck, correct to 3 significant figures?

A. 51.8 tonnes   B. 51.838 tonnes   C. 53.3 tonnes   D. 53.325 tonnes

25. Given that $P = \sqrt{\dfrac{12 \times 18}{15 - 9}}$ and $Q = \sqrt[3]{\dfrac{18 - 9}{4}}$, which statement is true?

A. P is a rational number and Q is an irrational number.

B. Q is a rational number and P is an irrational number.

C. P and Q are both irrational numbers.

D. P and Q are both rational numbers.

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Multiple Choice Answer Sheet

Basic Number Skills

Name _____

Completely fill the response oval representing the most correct answer.

1.   A ◯   B ◯   C ◯   D ◯
2.   A ◯   B ◯   C ◯   D ◯
3.   A ◯   B ◯   C ◯   D ◯
4.   A ◯   B ◯   C ◯   D ◯
5.   A ◯   B ◯   C ◯   D ◯
6.   A ◯   B ◯   C ◯   D ◯
7.   A ◯   B ◯   C ◯   D ◯
8.   A ◯   B ◯   C ◯   D ◯
9.   A ◯   B ◯   C ◯   D ◯
10. A ◯   B ◯   C ◯   D ◯
11. A ◯   B ◯   C ◯   D ◯
12. A ◯   B ◯   C ◯   D ◯
13. A ◯   B ◯   C ◯   D ◯
14. A ◯   B ◯   C ◯   D ◯
15. A ◯   B ◯   C ◯   D ◯
16. A ◯   B ◯   C ◯   D ◯
17. A ◯   B ◯   C ◯   D ◯
18. A ◯   B ◯   C ◯   D ◯
19. A ◯   B ◯   C ◯   D ◯
20. A ◯   B ◯   C ◯   D ◯
21. A ◯   B ◯   C ◯   D ◯
22. A ◯   B ◯   C ◯   D ◯
23. A ◯   B ◯   C ◯   D ◯
24. A ◯   B ◯   C ◯   D ◯
25. A ◯   B ◯   C ◯   D ◯

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Year 9 *Basic Number Skills*

ANSWERS

Question	Working and Answer
1.	$423 \times 3 =$ **1269**
2.	$\begin{array}{r} 427 + \\ 356 \\ \underline{939} \\ \mathbf{1722} \end{array}$
3.	$\begin{array}{r} 1254 - \\ \underline{397} \\ \mathbf{857} \end{array}$
4.	$\begin{array}{r} \mathbf{189} \\ 3\overline{)567} \end{array}$
5.	$(-6)^2 = -6 \times -6 =$ **36**
6.	$11 - (-7) = 11 + 7 =$ **18**
7.	$\dfrac{4}{5} \times \dfrac{2}{3} = \dfrac{\mathbf{8}}{\mathbf{15}}$
8.	$40\% \text{ of } 80 = \dfrac{40}{100} \times \dfrac{80}{1}$ $= \dfrac{3200}{100}$ $= \mathbf{32}$

Question	Working and Answer
9.	$\dfrac{15}{25} = \dfrac{3}{5}$
10.	$\dfrac{10}{24} = \dfrac{5}{12}$ of the animals are sheep
11.	$\begin{array}{r} 2.48 \\ \times\ \ 5 \\ \hline 12.40 \end{array}$ **12.4**
12.	$(24 - 31) \times (-5) = (-7) \times (-5)$ $\qquad\qquad\qquad = \mathbf{35}$
13.	$\dfrac{2}{3} + \dfrac{1}{5} = \dfrac{10}{15} + \dfrac{3}{15}$ $\qquad\quad = \dfrac{\mathbf{13}}{\mathbf{15}}$
14.	$\begin{array}{r} 0.15\ \times \\ 0.06 \\ \hline 0.0090 \end{array}$ **0.009**
15.	$\dfrac{25}{40} \times \dfrac{100}{1} = \dfrac{5}{8} \times \dfrac{100}{1} = \dfrac{500}{8} = \mathbf{62\tfrac{1}{2}\%}$
16.	$\dfrac{-32}{-12 + (-4)} = \dfrac{-32}{-16} = \mathbf{2}$
17.	$\dfrac{17}{25} - \dfrac{3}{10} = \dfrac{34}{50} - \dfrac{15}{50}$ $\qquad\qquad = \dfrac{\mathbf{19}}{\mathbf{50}}$
18.	$\begin{array}{r} \mathbf{0.0087} \\ \hline 3\overline{)0.0261} \end{array}$

Question	Working and Answer
19.	$0.648 = \dfrac{648}{1000} = \dfrac{324}{500} = \dfrac{162}{250} = \dfrac{\mathbf{81}}{\mathbf{125}}$
20.	What is $\dfrac{5}{8}$ of $72 = \dfrac{5}{8} \times \dfrac{(72)^9}{1} = \mathbf{45}$
21.	Number of males $= 80000 - 24000 = 56000$ Percentage of males $= \dfrac{56}{80} \times 100$ $= \dfrac{7}{10} \times 100$ $= \mathbf{70\%}$
22.	$\dfrac{5}{8} \div \dfrac{3}{4} = \dfrac{5}{8} \times \dfrac{4}{3}$ $= \dfrac{5}{8^2} \times \dfrac{4^1}{3}$ $= \dfrac{\mathbf{5}}{\mathbf{6}}$
23.	$3\dfrac{3}{4} - 1\dfrac{2}{3} = \dfrac{15}{4} - \dfrac{5}{3}$ $= \dfrac{45}{12} - \dfrac{20}{12}$ $= \dfrac{25}{12}$ $= \mathbf{2\dfrac{1}{12}}$

Question	Working and Answer
24.	One hour and 20 min $= 60 + 20 = 80$ minutes 5% of 80 minutes $= \dfrac{5}{100} \times \dfrac{80}{1}$ $= \dfrac{\cancel{5}\,1}{\cancel{100}\,\cancel{5}\,1} \times \dfrac{\cancel{80}\,4}{1}$ $= 4$ minutes 1 hour and 20 min $-$ 4 min $=$ **1 hour and 16 minutes** OR One hour and 20 min $= 60 + 20 = 80$ minutes Decrease 80 minutes by $5\% = \dfrac{95}{100} \times \dfrac{80}{1}$ $= \dfrac{\cancel{95}\,19}{\cancel{100}\,\cancel{5}\,1} \times \dfrac{\cancel{80}\,4}{1}$ $= 4 \times 19$ $= 76$ minutes $=$ **1 hour and 16 minutes**
25.	$\dfrac{\sqrt[3]{27} \times 4^2}{2^4 \times \sqrt{81}} = \dfrac{3 \times 16}{16 \times 9}$ $= \dfrac{1\,\cancel{3} \times \cancel{16}}{\cancel{16} \times \cancel{9}\,3}$ $= \dfrac{1}{3}$

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Basic Number Skills

Calculator Allowed
Multiple Choice
Section

Year 9

ANSWERS

Question	Working	M C Answer
1.	The second decimal place is hundredths	C
2.	A. $\dfrac{4}{5} = \dfrac{80}{100}$ B. $\dfrac{3}{4} = \dfrac{75}{100}$ C. $\dfrac{18}{25} = \dfrac{72}{100}$ D. $\dfrac{17}{20} = \dfrac{85}{100}$	D
3.	$0.36 = \dfrac{36}{100} = \dfrac{9}{25}$	B
4.	$\dfrac{5}{6} = \dfrac{10}{12} = \dfrac{20}{24} = \dfrac{30}{36} \neq \dfrac{20}{25} \left(= \dfrac{4}{5} \right)$	A
5.	$\dfrac{15}{100} \times \dfrac{80}{1} = \dfrac{15\ 3}{100\ 5\ 1} \times \dfrac{80\ 4}{1}$ $= 12 \text{ kg}$	C
6.	$8\% = 8 \div 100 = 0.08$	B
7.	$37.5\% \text{ of } 128 = 0.375 \times 128$ $= 48$	A
8.	$\dfrac{29}{40} \times 100 = 72\tfrac{1}{2}\%$	D

9.	Increase 250 by 20 % $= 250 \times \dfrac{120}{100}$ (or $\times$ 1.2) $= 300$ metres	**C**
10.	$\dfrac{-8 \times -10}{-16 + 11} = \dfrac{80}{-5}$ $= -16$	**A**
11.	5 parts are shaded out of 8 Fraction shaded $= \dfrac{5}{8} = \dfrac{5}{8} \times 100\% = 62.5\%$	**D**
12.	$\dfrac{1}{3} = \dfrac{2}{6},\quad \dfrac{1}{2} = \dfrac{3}{6},\quad \dfrac{2}{3} = \dfrac{4}{6},\quad \dfrac{5}{6}$	**B**
13.	$100 - 40 + 80 - 200 - 60 = 180 - 300$ $= -120$	**C**
14.	$\dfrac{9}{40} = 9 \div 40 = 0.225 = 22.5\%$	**A**
15.	Profit $= 48 - 30 = \$18$ Percentage Profit $= \dfrac{18}{30} \times 100\%$ $= 60\%$	**B**
16.	$1\frac{1}{3} = 4 \div 3 = 1.\dot{3}$ So point C shows this.	**C**
17.	Decrease $60 - 55 = 5$ kg Percentage decrease $= \dfrac{5}{60} \times 100$ $= 8.3333..$ $= 8\frac{1}{3}\%$	**D**
18.	$11\frac{1}{2}\% = 0.115$ and $0.125 > 0.115$ so $0.125 < 11\frac{1}{2}\%$ is false.	**D**

19.	Write all as percentages
	  41%
	  $0.39 \times 100 = 39\%$
	  $0.4 \times 100 = 40\%$
	  $\dfrac{19}{50} \times 100 = 38\%$
	So in order:
	$\dfrac{19}{50},$ 0.39, 0.4, 41%
		A

20.	$\dfrac{7}{15} = 7 \div 15$
	    $= 0.4666666......$
	    $= 0.4\dot{6}$
		B

21.	$\dfrac{2}{5}$ of group $= \$48$ $\dfrac{1}{5}$ of group $= 48 \div 2 = \$24$ Whole group $= 24 \times 5 = 120$ $\dfrac{3}{4}$ of group $= \dfrac{3}{4} \times 120 = 90$ people	**C**
22.	$\dfrac{67}{90} = 67 \div 90 = 0.744444.... = 0.7\dot{4}$	**B**

23.	Price after profit margin added $= 145\%$ of $\$280$
	                  $= 1.45 \times 280$
	                  $= \$406.00$
	    Price after GST added $= 110\%$ of $\$406 = 1.1 \times 406$
	                  $= \$446.60$
		D

24.	Weight of topsoil $= 75.5 \times 0.65 = 49.075$
	Weight of loaded truck $= 49.075 + 4.25$
	                  $= 53.325$
	                  $= 53.3$ tonnes (3 sig fig)
		C

25.		A
	$P = \sqrt{\dfrac{12 \times 18}{15 - 9}}$	
	$ = \sqrt{\dfrac{216}{6}}$	
	$ = \sqrt{36}$	
	$ = 6$ which is rational	
	$Q = \sqrt[3]{\dfrac{18 - 9}{4}}$	
	$ = \sqrt[3]{\dfrac{9}{4}}$ which is irrational	

School Name

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Multiple Choice Answer Sheet

Basic Number Skills

Name _____

Completely fill the response oval representing the most correct answer.

1. A ○   B ○   C ●   D ○
2. A ○   B ○   C ○   D ●
3. A ○   B ●   C ○   D ○
4. A ●   B ○   C ○   D ○
5. A ○   B ○   C ●   D ○
6. A ○   B ●   C ○   D ○
7. A ●   B ○   C ○   D ○
8. A ○   B ○   C ○   D ●
9. A ○   B ○   C ●   D ○
10. A ●   B ○   C ○   D ○
11. A ○   B ○   C ○   D ●
12. A ○   B ●   C ○   D ○
13. A ○   B ○   C ●   D ○
14. A ●   B ○   C ○   D ○
15. A ○   B ●   C ○   D ○
16. A ○   B ○   C ●   D ○
17. A ○   B ○   C ○   D ●
18. A ○   B ○   C ○   D ●
19. A ●   B ○   C ○   D ○
20. A ○   B ●   C ○   D ○
21. A ○   B ○   C ●   D ○
22. A ○   B ●   C ○   D ○
23. A ○   B ○   C ○   D ●
24. A ○   B ○   C ●   D ○
25. A ●   B ○   C ○   D ○