

# High School Mathematics Test 2014

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 \_\_\_\_\_

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

1.  $-5 \times -6 = ?$

.....

2.  $235 + 1\,478 =$

.....

.....

3.  $\frac{1}{4} + \frac{3}{8} =$

.....

4.  $0.74 + 2.5 = ?$

.....

.....

5.  $48 \times 6 = ?$

.....

.....

6. Find 45% of \$240.

.....

.....

7. In a car park there are 56 vehicles and  $\frac{5}{8}$  of them are sedans.  
How many sedans are there in the car park?

.....

.....

8.  $(18 - 13) \times (15 - 23) =$

.....

.....

9.  $\frac{5}{8} - \frac{5}{12} = ?$

.....

.....

10.  $2.54 \times 8 = ?$

.....

.....

11. There are 26 boys in a group of 40 football fans travelling to a match on a bus.  
What percentage of the fans are girls?

.....

.....

12. Increase 150 kg by 2%.

.....

.....

13. An electrical shop buys laptop computers for \$250.00 and sells them for and 64% profit.  
What is the selling price?

.....

.....

14.  $\frac{(7-15)^2}{\sqrt{5^2-3^2}} =$

.....

.....

15.  $\frac{2}{3} \times \left(\frac{1}{2} + \frac{1}{5}\right) = ?$

.....

.....

16.  $21.08 \times 0.07 = ?$

.....

.....

17. What decimal is equivalent to  $\frac{9}{11}$ ?

.....

.....

18. An alloy is made of 65% iron, 15% chromium and 20% nickel.  
If 12 kg of chromium is used in making a batch of the alloy, how much iron would be required?

.....

.....

# High School Mathematics Test 2014

Year 9

## Basic Number Skills

Calculator Allowed

Name \_\_\_\_\_

### 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 number goes in the box?  $\frac{21}{35} = \frac{\boxed{\phantom{000}}}{5}$   
A. 3                      B. 5                      C. 7                      D. 9
2.  $0.64 = ?$   
A.  $\frac{4}{5}$                       B.  $\frac{16}{25}$                       C.  $\frac{1}{2}$                       D.  $\frac{8}{25}$
3. What is the place value of the 2 digit in the number 35.267?  
A. Units                      B. Tenths                      C. Hundredths                      D. Thousandths
4. Convert the fraction  $\frac{9}{20}$  to a percentage.  
A. 30%                      B. 45%                      C. 90%                      D. 92%
5. Write 46% as a decimal number.  
A. 0.0046                      B. 0.046                      C. 0.46                      D. 4.6
6. What fraction is 25 minutes of an hour and forty minutes?  
A.  $\frac{1}{4}$                       B.  $\frac{1}{2}$                       C.  $\frac{4}{5}$                       D.  $\frac{5}{8}$
7. In a talent contest there are 1 500 applicants and only 30 get past the audition stage. What percentage of the applicants get past auditions?  
A. 0.5%                      B. 1%                      C. 1.5%                      D. 2%

8. The minimum temperatures (in °C) in Hobart over 5 days are -6, -8, -1, 2 and -7. What was the average minimum temperature over the 5 days?
- A. -2.5                      B. -3                      C. -3.5                      D. -4
- 
9. Which statement is correct?
- A.  $2 - 8 < -10$                       B.  $10 - 2 < -8$   
C.  $8 - 10 > -2$                       D.  $2 - 8 > -10$
- 
10. Denise needs 41.5 GB of portable memory space for her computer. She buys 5 memory sticks which each have a capacity of 8.5 GB. Which is true?
- A. He will have enough space with 1 GB to spare.  
B. He will have just enough space with nothing spare.  
C. He will be 1 GB short of the space he needs.  
D. He will be 2 GB short of the space he needs.
- 
11. Keelan is saving 72.5 % of his weekly pocket money to buy a bike. If his weekly pocket money totals \$36.00, how much does he save?
- A. \$22.50                      B. \$26.10                      C. \$27.00                      D. \$30.50
- 
12. Keith is the goal kicker for the Tigers Rugby League team. He had 85 shots at goal last season and was successful with 55 of them. What percentage of his shots were successful (to the nearest whole number)?
- A. 13%                      B. 55%                      C. 65%                      D. 87%
- 
13. Cal buys fuel at the service station at a price of 149 cents per litre. The fuel costs a total of \$60.54. When he gets home, he uses his calculator to find the number of litres he bought. Which calculation should he do?
- A.  $60.54 \div 0.149$                       B.  $60.54 \div 1.49$                       C.  $60.54 \div 14.9$                       D.  $60.54 \div 149$
- 
14. Which of these statements are true?
- Statement 1 :  $\frac{3}{5} > 0.55$   
Statement 2 :  $\frac{2}{3} < 65\%$
- A. Only Statement 1 is true.  
B. Only Statement 2 is true.  
C. Neither statement is true.  
D. Both statements are true.

- |     |  |    |                 |    |                 |    |                  |
|-----|--|----|-----------------|----|-----------------|----|------------------|
| 15. | Melissa saves 35% of her pay from her weekend job for her future university fees. If she saves \$49, what was her pay? |    |                 |    |                 |    |                  |
| A.  | \$120  | B. | \$135           | C. | \$140           | D. | \$145            |
| 16. | 0.0329646 rounded to 2 significant figures is :  |    |                 |    |                 |    |                  |
| A.  | 0.03   | B. | 0.04            | C. | 0.032           | D. | 0.033            |
| 17. | Which of the fractions below is <b>not</b> equivalent to $\frac{24}{30}$ ?   |    |                 |    |                 |    |                  |
| A.  | $\frac{4}{5}$  | B. | $\frac{8}{10}$  | C. | $\frac{12}{16}$ | D. | $\frac{36}{45}$  |
| 18. | Which fraction is equivalent to $0.\dot{2}\dot{1}$ ?   |    |                 |    |                 |    |                  |
| A.  | $\frac{7}{33}$   | B. | $\frac{19}{90}$ | C. | $\frac{21}{90}$ | D. | $\frac{69}{330}$ |

# *High School Mathematics Test 2014*

## Basic Number Skills

### Multiple Choice Answer Sheet

Name \_\_\_\_\_

Completely fill the response oval representing the most correct answer.

- |     |   |                       |   |                       |   |                       |   |                       |
|-----|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| 1.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 2.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 3.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 4.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 5.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 6.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 7.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 8.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 9.  | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 10. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 11. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 12. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 13. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 14. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 15. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 16. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 17. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
| 18. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |

# High School Mathematics Test 2014

## Basic Number Skills

### ANSWERS

Section 1 ( 1 mark each)	
	Working and Answers
1.	$-5 \times -6 = 30$
2.	$\begin{array}{r} 235 + \\ 1478 \\ \hline 1713 \end{array}$
3.	$\frac{1}{4} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8} = \frac{5}{8}$
4.	$0.74 + 2.5 = 0.99$
5.	$\begin{array}{r} 48 \times \\ 6 \\ \hline 288 \end{array}$
6.	$\begin{aligned} 45\% \text{ of } \$240 &= \frac{45}{100} \times 240 \\ &= \frac{45}{5} \times 12 \\ &= 9 \times 12 \\ &= \$108 \end{aligned}$
7.	$\frac{5}{8} \times \frac{56}{1} = 5 \times 7 = 35$
8.	$\begin{aligned} (18 - 13) \times (15 - 23) &= 5 \times (-8) \\ &= -40 \end{aligned}$
9.	$\begin{aligned} \frac{5}{8} - \frac{5}{12} &= \frac{15}{24} - \frac{10}{24} \\ &= \frac{5}{24} \end{aligned}$
10.	$2.54 \times 8 = 20.32$
11.	<p>There are <math>40 - 26 = 14</math> girls</p> $\begin{aligned} \text{Percentage of girls} &= \frac{14}{40} \times (100\%) \\ &= 7 \times 5 \\ &= 35\% \end{aligned}$



12.	$\begin{aligned} \text{Increase 150 kg by 2\%} &= \frac{\cancel{150}^3}{1} \times \frac{\cancel{100}^2 \cancel{51}}{\cancel{100}^2 \cancel{2}} \\ &= 3 \times 51 \\ &= 153 \text{ kg} \end{aligned}$
13.	$\begin{aligned} \text{Selling price} &= \frac{164}{100} \times \frac{250}{1} \\ &= 82 \times 5 \\ &= \$410 \end{aligned}$
14.	$\begin{aligned} \frac{(7-15)^2}{\sqrt{5^2-3^2}} &= \frac{(-8)^2}{\sqrt{25-9}} \\ &= \frac{64}{\sqrt{16}} \\ &= \frac{64}{4} \\ &= 16 \end{aligned}$
15.	$\begin{aligned} \frac{2}{3} \times \left( \frac{1}{2} + \frac{1}{5} \right) &= \frac{2}{3} \times \left( \frac{5}{10} + \frac{2}{10} \right) \\ &= \frac{2}{3} \times \frac{7}{10} \\ &= \frac{14}{30} \\ &= \frac{7}{15} \end{aligned}$
16.	$21.08 \times 0.07 = 1.4756$
17.	$\frac{9}{11} = 9 \div 11 = 0.8\dot{1}$ $\begin{array}{r} 0.818181\dots \\ 11 \overline{) 9.0000000\dots} \end{array}$
18.	$\begin{aligned} 15\% \text{ of total alloy} &= 12\text{kg} \\ 5\% \text{ of total alloy} &= 12 \div 3 = 4 \text{ kg.} \\ 65\% \text{ of total} &= 4 \times 13 = 52 \text{ kg} \end{aligned}$

Section 2 (1 mark each)		
	Working	Answers
1.	$\frac{21}{35} = \frac{21 \div 7}{35 \div 7} = \frac{\boxed{\phantom{00}}}{5}$ $\boxed{\phantom{00}} = 3$	A
2.	$\frac{64}{100} = \frac{32}{50} = \frac{16}{25}$	B
3.	In 35.267 the 6 is in the hundredths place.	C
4.	$\frac{9}{20} \times 100 = 9 \times 5 = 45\%$	B
5.	$46\% = 0.46$	C
6.	$\frac{25 \text{ min}}{100 \text{ min}} = \frac{1}{4}$	A
7.	$\frac{30}{1500} \times 100 = 2\%$	D
8.	$\text{Average} = \frac{-6 - 8 - 1 + 2 - 7}{5} = -\frac{20}{5} = -4$	D
9.	$2 - 8 > -10 \Rightarrow -6 > -10$ True	D
10.	$8.5 \times 5 = 42.5$ which is enough with 1 GB to spare.	A
11.	Savings = $0.725 \times 36 = \$26.10$	B
12.	$\text{Percentage} = \frac{55}{85} \times 100 = 64.70$ $= 65\% \text{ Nearest whole number.}$	C
13.	$60.54 \div 1.49$ (write both in dollars)	B
14.	<p>Statement 1 : <math>\frac{3}{5} = 60\%</math>  <math>0.55 = 55\%</math>  <math>\frac{3}{5} &gt; 0.55</math>  Statement 1 is true</p> <p>Statement 2 : <math>\frac{2}{3} = 66\frac{2}{3}\%</math>  <math>65\%</math>  <math>66\frac{2}{3} &gt; 65\%</math>  Statement 2 is false</p>	A
15.	$35\% \text{ of pay} = 49$ $5\% \text{ of pay} = 49 \div 7 = \$7$ $\text{Pay} = \$7 \times 20 = \$140$	C
16.	$0.0329646 = 0.033$ ( 2 sf)	D
17.	$\frac{12}{16} = \frac{3}{4} \neq \frac{24}{30}$	C
18.	$\frac{7}{33} = 7 \div 33 = 0.212121\dots = 0.\dot{2}\dot{1}$	A

# High School Mathematics Test 2014

## Basic Number Skills

### Multiple Choice Answer Sheet

Name Marking Sheet

Completely fill the response oval representing the most correct answer.

- |     |   |                                  |   |                                  |   |                                  |   |                                  |
|-----|---|----------------------------------|---|----------------------------------|---|----------------------------------|---|----------------------------------|
| 1.  | A | <input checked="" type="radio"/> | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 2.  | A | <input type="radio"/>            | B | <input checked="" type="radio"/> | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 3.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 4.  | A | <input type="radio"/>            | B | <input checked="" type="radio"/> | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 5.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 6.  | A | <input checked="" type="radio"/> | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 7.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input checked="" type="radio"/> |
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| 17. | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 18. | A | <input checked="" type="radio"/> | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input type="radio"/>            |