

# High School Mathematics Test 2013

Year

*Basic Number Skills*

Non Calculator  
Section

## 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 Non Calculator Section

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

1. The minimum temperature on five days on Macquarie Island was  $-8$ ,  $-7$ ,  $-11$ ,  $-13$  and  $-6$ . What was the average of the minimum temperatures?

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2. Find the value of  $-6 \times (-3)^2 - (5 - 28)$ .

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3. What is the reciprocal of  $2\frac{3}{5}$ .

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4. How much remains when a bottle which holds 0.375 litres is filled from a jug which holds 1.5 litres.

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5. Write the decimal 0.24 as a fraction in simplest form.

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6. Corey trains for  $\frac{3}{4}$  of an hour on Tuesday,  $1\frac{1}{2}$  hours on Wednesday and  $\frac{2}{3}$  of an hour on Thursday. How many hours did he train altogether in the three days?

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7. Multiply 6.4 by 0.08.

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8. Store A gives a 35% discount on the price of a smart phone.  
Store B gave a discount of  $\frac{1}{3}$  off the price of the smart phone.  
If the original price was the same at both stores, which discount is better?

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9. Manuel makes ginger beer to sell at the weekend markets. He writes down the amount that he produced each day. Monday – 6.25 litres, Tuesday – 8.35 litres, Wednesday – 6.2 litres, Thursday – 8.625 litres and Friday – 11 litres.  
What was the total amount that he had made to take to the markets?

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10. Reece collects 250 pippis at the beach, and gives 120 of these to Brooke.  
What percentage of the pippis did he give to Brooke?

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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. Which number below can be placed in the box so that  $\frac{\square}{20}$  has a value between  $\frac{1}{4}$  and  $\frac{2}{5}$ ?

A. 4                      B. 6                      C. 8                      D. 10.

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2. What is the value of  $(1.2)^3 - 0.028$ ?

A. 1.1                      B. 1.42                      C. 1.7                      D. 3.572

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3. Which set of numbers are in ascending order?

A. 0.4,  $\frac{1}{4}$ ,  $\frac{4}{5}$ , 45%,.                      B.  $\frac{1}{4}$ , 0.4, 45%,  $\frac{4}{5}$ .

C.  $\frac{1}{4}$ , 0.4,  $\frac{4}{5}$ , 45%.                      D. 45%,  $\frac{4}{5}$ ,  $\frac{1}{4}$ , 0.4.

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4. Which is the correct way to write  $\frac{7}{11}$  as a decimal?

A. 0.0 $\dot{7}\dot{7}$                       B. 0. $\dot{1}\dot{7}$                       C. 0. $\dot{6}\dot{3}$                       D. 1. $\dot{5}7142\dot{8}$

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5. Jayden counts his football card collection and finds that  $\frac{5}{12}$  of the cards are for players in his favourite club, the Demons. If he has 144 cards altogether, how many are from Clubs other than the Demons?

A. 12                      B. 60                      C. 72                      D. 84

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6. Lyndal buys fuel at the service station at a price of 150 cents per litre. The fuel costs a total of \$60.75. When she gets home, she uses her calculator to find the number of litres she bought. Which calculation should she do?

A.  $60.75 \div 1.5$                       B.  $60.75 \div 15$                       C.  $60.75 \div 150$                       D.  $150 \div 60.75$

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7. What does 125.538 become when rounded to the nearest  $10^{\text{th}}$ ?
- A. 125                      B. 125.5                      C. 125.6                      D. 125.54
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8. Lee plays in a cricket team which last season won 65% of its matches. If the team won 13 matches, how many matches did they play altogether?
- A. 7                      B. 13                      C. 17                      D. 20
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9. Which of the fractions below is not equivalent to  $\frac{18}{24}$ ?
- A.  $\frac{2}{3}$                       B.  $\frac{3}{4}$                       C.  $\frac{12}{16}$                       D.  $\frac{36}{48}$
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10. Which fraction is equivalent to  $0.1\dot{7}$ ?
- A.  $\frac{8}{45}$                       B.  $\frac{4}{25}$                       C.  $\frac{16}{99}$                       D.  $\frac{17}{100}$
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### Section 3 Longer Answer Section

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

**Marks**

1. A surf shop buys board shorts for \$22.50 and sells them for an 80% profit. They then need to add 10% GST to give the selling price.

- a) Show that the selling price of a pair of board shorts, including GST, is \$44.55.

**2**

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- b) Toward the end of summer, the shop offers the board shorts on sale for \$26.73, including GST. What percentage discount did the store offer?

**1**

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- c) How much GST was included in the sale price of \$26.73?

**1**

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# *High School Mathematics Test 2013*

## *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"/> |

# High School Mathematics Test 2013 Basic Number Skills

## ANSWERS

Section 1	
1.	$-45 \div 5 = -9$
2.	$-6 \times (-3)^2 - (5 - 28) = -6 \times 9 - (-23)$ $= -54 + 23$ $= -31$
3.	Reciprocal of $2\frac{3}{5}$ = Reciprocal of $\frac{13}{5}$ $= \frac{5}{13}$
4.	$\begin{array}{r} 1.500 - \\ 0.375 \\ \hline 1.125 \end{array}$ There are 1.1.25 litres remaining.
5.	$0.24 = \frac{24}{100}$ $= \frac{6}{25}$
6.	$\frac{3}{4} + 1\frac{1}{2} + \frac{2}{3} = \frac{9}{12} + 1\frac{6}{12} + \frac{8}{12}$ $= 1 + \frac{23}{12}$ $= 2\frac{11}{12}$ (also 2hrs 55 min)
7.	$6.4 \times 0.08 = 0.512$
8.	$\frac{1}{3} = 33\frac{1}{3}\%$ 35% is more than this, so Store A is best.
9.	$6.25 + 8.35 + 6.2 + 8.625 + 11 = 40.425$ litres.
10.	Percentage = $\frac{120}{250} \times 100\%$ $= \frac{120}{5} \times 2$ $= \frac{240}{5}$ $= 48\%$

Section 2	
1.	B
2.	C
3.	B

4.	C
5.	D
6.	A
7.	B
8.	D
9.	A
10.	A

Section 3	
1.	<p>a) Price with profit included = 180% of 22.50  <math>= 1.8 \times 22.50</math>  <math>= \\$40.50</math>            Price with GST included = 110% of \$40.50  <math>= \\$44.55</math></p>
	<p>b) Discount = <math>44.55 - 26.73</math>  <math>= \\$17.82</math>            Percentage discount = <math>\frac{17.82}{44.55} \times 100</math>  <math>= 40\%</math> discount.</p>
	<p>c) Price including GST = <math>\\$26.73 = 110\%</math> of Price without GST.            Price without GST = <math>26.73 \div 1.1 = \\$24.30</math>            GST = <math>26.73 - 24.3 = \\$2.43</math></p>



# High School Mathematics Test 2013

## Multiple Choice Answer Sheet

Name \_\_\_\_\_ Marking Sheet

Completely fill the response oval representing the most correct answer.

- |     |   |                                  |   |                                  |   |                                  |   |                                  |
|-----|---|----------------------------------|---|----------------------------------|---|----------------------------------|---|----------------------------------|
| 1.  | A | <input type="radio"/>            | B | <input checked="" type="radio"/> | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 2.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 3.  | A | <input type="radio"/>            | B | <input checked="" type="radio"/> | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 4.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 5.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input checked="" 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 checked="" 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 checked="" type="radio"/> |
| 9.  | A | <input checked="" type="radio"/> | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 10. | A | <input checked="" type="radio"/> | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input type="radio"/>            |