

# High School Mathematics Test 2013

Year  
9

## Simple Interest and Consumer

Calculator Allowed.

### Skills and Knowledge Assessed:

- Solve problems involving profit and loss, with and without digital technologies (ACMNA189)
- Calculate discounts expressed as percentages.
- Solve problems involving simple interest (ACMNA211)

Name \_\_\_\_\_

### Section 1 Short Answer Section

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

#### Simple Interest

$$I = PRN$$

$I$  is the interest earned

$P$  is the principal

$R$  is the interest rate per period as a decimal

$N$  is the number of periods

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1. Misha sells framed prints at the local market. She buys each one for \$28.40 and sells them for \$35.50. What percentage profit does she make on her cost price?

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2. Jose makes a 6 % loss on his cost price when he sells last year's stock in his surf shop. A towel was bought for \$20.00, what did he sell it for?

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3. Steve buys a new carburettor for his ute. It normally costs \$120.50, but the retailer gives him a 15% discount for being a regular customer. What did he pay for the carburettor?

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4. Lauren buys a digital radio at the sale shown.  
She paid \$245 for the radio.  
What was its normal price before the sale?

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.....  
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**Monster  
Sale**

**30% OFF  
EVERYTHING**

- 
5. During discounting battle between two companies, unleaded petrol was discounted from \$1.50 per litre to \$1.29 per litre. What percentage discount is this?

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6. Petra borrows \$6 400 and pays simple interest on the principal for 4 years at 8% p.a. How much interest does she pay?

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7. Suri loans her sister \$4 800 at 6.5% pa interest to be repaid in 2 years. How much should be repaid?

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8. Leah wants to earn \$1 800 in interest in 2 years. The best simple interest rate that she can find is 15% p.a. How much would she need to invest to achieve her aim of \$1 600 in interest?

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9. Susan invests \$900 at 6% p.a. simple interest for a period of 8 months. How much interest does she earn?

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10. Clarissa has an investment that earned \$600 in simple interest from an investment of \$3 000 for 4 years. What was the simple interest rate?

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*High School  
Mathematics Test 2013*  
*Simple Interest and  
Consumer*

Calculator Allowed

Year \_\_\_\_\_

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. Francine buys a dress marked at \$155.00 at a sale where a 20% discount is offered off the marked price of all items. How much did she pay for the dress?

A. \$31.00                      B. \$124.00                      C. \$135.00                      D. \$153.00

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2. Justin bought a bicycle two years ago for \$340.00, and sold it this year for \$221.00. What was his percentage loss on the cost price?

A. 35%                      B. 46%                      C. 54%                      D. 65%

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3. Georgie buys a smart phone at this sale. She saved \$180 off the full price of \$750. What percentage discount did she receive on the smart phone?

**SALE**  
**Up to 60% OFF**  
**EVERYTHING**

A. 24%                      B. 30%                      C. 40%                      D. 60%

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4. A hardware store makes a 65% profit on the cost price of all of its sales. If the store sells a drill set for \$66.00, what was the cost price of the set?

A. \$1.00                      B. \$23.10                      C. \$40.00                      D. \$42.90

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5. A store has two packs of Rice Bix cereal available.  
Pack A costs \$3.60 and contains 8 smaller packs which each hold 60 grams.  
Pack B costs \$4.80 and holds 750 grams.  
Which is true?
- A. Pack A is better value per gram.  
B. Pack B is better value per gram.  
C. Both packs are the same value per gram.  
D. There is not enough information to decide which is the best value.
- 
6. Bridget borrows \$5 000 at 8% pa simple interest for 3 years. How much does she pay in interest?
- A. \$400                      B. \$600                      C. \$900                      D. \$1 200
- 
7. Brad borrows \$16 500 at 5% pa simple interest for 4 years. How much does he have to pay back in total?
- A. \$825                      B. \$3 300                      C. \$17 325                      D. \$19 800
- 
8. Corben invested \$8 000 at 9% pa simple interest for 5 months. How much interest did he earn?
- A. \$60                      B. \$180                      C. \$300                      D. \$3 600
- 
9. Martin invested \$1 200.00 at 5% p.a simple interest for a period of time and earned \$ 180.00 in interest. How long was the money invested for?
- A. 1 year.                      B. 2 years.                      C. 3 years.                      D. 4 years.
- 
10. Joe has \$6 000 to invest and wants to earn \$1 200 in interest over 5 years. What interest rate does he need to obtain?
- A. 3% pa.                      B. 4% pa.                      C. 6% pa.                      D. 8% pa.
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### Section 3      Longer Answer Section

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

- |   | Marks |
|---|-------|
| 1. Petrol is advertised as costing \$1.25 per litre, but with a coupon you can get 4 cents per litre off the price, or if you spend at least \$5.00 in the service station store, you get 8cents per litre off the price of the petrol. |       |
| a) What percentage discount do you receive if you get the 4 cents per litre off?  | 1     |
| .....   |       |
| .....   |       |
| b) Mike buys 40 litres of fuel, spends \$5.00 in the service station store, and presents his coupon at the till. What percentage discount does he receive off his total bill? (Answer to 1 decimal place.)                              | 2     |
| .....   |       |
| .....   |       |
| 2. Which of the following offers at the green grocers gives the best value per kilogram?  | 2     |
| 20 kg bulk bag of potatoes for \$42.00.   |       |
| 2 kg bag of potatoes on special for \$5.40  |       |
| Loose potatoes at \$2.05 per kg.  |       |
| .....   |       |
| .....   |       |
| .....   |       |

# *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 Simple Interest and Consumer

## ANSWERS

Section 1	
1.	$\text{Profit} = 35.5 - 28.4 = \$7.10$ $\text{Percentage profit} = \frac{7.10}{28.4} \times 100 = 25\%$
2.	$\text{Selling price} = 94\% \text{ of } \$20 = 0.94 \times 20 = \$18.80$
3.	$\text{Discounted Price} = 85\% \text{ of } \$125.00$ $= 0.85 \times 125.00$ $= \$106.25$
4.	$70\% \text{ of full price} = 245$ $10\% \text{ of full price} = 245 \div 7 = \$35$ $100\% \text{ of full price} = \$35 \times 10 = \$350$
5.	$\text{Discount} = 1.50 - 1.29 = \$0.21$ $\text{Percentage discount} = 0.21 \div 1.50 \times 100 = 14\%$
6.	$\text{Interest} = 6400 \times 0.08 \times 4 = \$2\,048$
7.	$\text{Interest} = 4800 \times 0.065 \times 2 = \$624$ $\text{Amount repaid} = 4800 + 624 = \$5\,424$
8.	$I = PRT$ $1800 = P \times 0.15 \times 2$ $0.3 \times P = 1800$ $P = 1800 \div 0.3$ $= \$6\,000$
9.	$\text{Interest} = 900 \times 0.06 \times \frac{8}{12}$ $= \$36$
10.	$I = PRT$ $600 = 3000 \times R \times 4$ $600 = 12000 \times R$ $R = \frac{600}{12000}$ $= 0.05$ <p>Interest Rate is 5% pa.</p>



Section 2	
1.	B
2.	A
3.	A
4.	C
5.	B
6.	D
7.	D
8.	C
9.	C
10.	B

Section 3		
1.	a) Discount = $\frac{0.04}{1.25} \times 100 = 3.2\%$ discount.	1 mark
	b) Amount spent without discount = $1.25 \times 40 + \$5 = \$55.00$ Discount = $0.08 \times 40 = \$3.20$ Percentage discount = $\frac{3.20}{55.00} \times 100 = 5.8\%$ discount	1 for Discount  1 for percentage discount
2.	20 kg bulk bag of potatoes for \$42.00 = $42 \div 20 = \$2.10 / \text{kg}$ 2 kg bag of potatoes on special for \$5.40 = $5.40 \div 2 = \$2.70/\text{kg}$ Loose potatoes at \$2.05 per kg. = $\$2.05 / \text{kg}$ . Loose potatoatoes is the best value.	1 for converting the first two  1 for comparison

# 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 checked="" type="radio"/> | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input type="radio"/>            |
| 3.  | A | <input checked="" 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 checked="" type="radio"/> | D | <input type="radio"/>            |
| 5.  | A | <input type="radio"/>            | B | <input checked="" 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 checked="" type="radio"/> |
| 7.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input type="radio"/>            | D | <input checked="" type="radio"/> |
| 8.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 9.  | A | <input type="radio"/>            | B | <input type="radio"/>            | C | <input checked="" type="radio"/> | D | <input type="radio"/>            |
| 10. | A | <input type="radio"/>            | B | <input checked="" type="radio"/> | C | <input type="radio"/>            | D | <input type="radio"/>            |