

School Name
Mathematics Test 2017

Year 9 *Financial Maths & Simple Interest*

Non Calculator

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

1. Find 32% of 600 kg.

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2. Carl paid \$64 000 for a 4WD and later sold it for \$ 48 000.
What was his loss as a percentage of the cost price

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| 3. | A hardware store bought a bench drill for \$90.00 and sold it at a 60% profit. How much profit do they make on the drill? |
| | |
| 4. | Calculate 8% p.a. simple interest on \$250 for 3 years. |
| | |
| 5. | A new pair of basketball shoes costs \$89.00 plus 10% GST. How much would you pay for the shoes, including GST? |
| | |
| 6. | An electrical store offers a 20% discount on all digital cameras. What would you pay for a camera normally priced at \$120.00. |
| | |
| 7. | Donnie buys a hotel for \$2.5 million and sells it 2 years later at a 60% profit. What is the selling price of the hotel? |
| | |
| 8. | Nicole invests \$5 000 at 2% per month simple interest. How much interest would he earn if he left the money invested for half a year? |
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| 9. | There are 32 000 Bulls fans at a Bulls vs Crusaders rugby match. This is 40% of the crowd. If 15% of the crowd support neither team, how many people is this? |
| 10. | Derek invests \$1200 at 5% p.a. simple interest. After 3 years, he is paid back the principal and the interest. How much will he be paid? |
| 11. | A store buys clothing and sells it at a 30% profit. The store sells a pair of shorts for \$65.00 How much profit did he make on the shorts? |
| 12. | Jodi invests \$3600 for 18 months in an account that pays 7% p.a. simple interest. How much interest will she earn? |
| 13. | Tim buys a dining table which has a cash price of \$1120, on time payments. He pays a deposit of \$100 and makes monthly payments of \$55.00 for two years. How much does he pay in interest? |
| 14. | Mike borrows \$16 000 to buy a car. After three years, he has repaid the loan plus interest, a total of \$20 080. What rate of simple interest was charged on the loan? |

15. Vince budgets 30% of his income for rent and \$210.00 a week for food.
The food budget is 35% of his income.
How much does he budget for rent?

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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 45% of 260 km?
- A. 5.8 km B. 13 km C. 117 km D. 126 km

2. Will bought a painting for \$800 and sold it a year later for \$1280.
What was his percentage profit on the cost price?
- A. 60% B. 64% C. 65% D. 68%


3. Polly bought a winter coat priced at \$160.00 at the sale advertised at right.
What did she pay for the coat?
- A. \$53.00 B. \$112.00
C. \$117.00 D. \$135.00



4. The price of a dress is \$135 before 10% GST is added.
What was the price after adding the GST?
- A. \$135.10 B. \$145.00
C. \$146.50 D. \$148.50



5. Erik invests \$12 000 at 6% p.a. for 4 years. How much interest does she earn?
- A. \$2000.00 B. \$2880.00 C. \$3600.00 D. \$14 880.00

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| 6. | Marcus sees a Games Console for sale at a price of \$1300. The next week the price has increased to \$1378. What is the percentage increase in price? A. 5.0% B. 5.5% C. 6.0% D. 6.5% |
| 7. | A service station buys soft drink cans at a wholesale price of \$0.65 each and adds a 120% profit margin. What is the selling price of a can of soft drink? (Answer to the nearest 5 cents.) A. \$0.80 B. \$1.45 C. \$1.65 D. \$1.85 |
| 8. | Evonne receives a discount of 40% off the price of a drum kit. She paid \$213.00 for the kit. What was the full price of the kit, before the discount? A. \$275.00 B. \$283.00 C. \$345.00 D. \$355.00  |
| 9. | Scott invests \$4800 in an account which pays 4.8% p.a. simple interest. How much will she earn in interest in 4 years? A. \$250.00 B. \$594.00 C. \$921.60 D. \$960.00 |
| 10. | Nova lends \$1680 to her friend, who pays 9% p.a. simple interest on the principal for 2½ years. How much should Nova be repaid in total? A. \$2058.00 B. \$2284.80 C. \$2146.67 D. \$4200.00 |
| 11. | Jewel invests \$1800 at 6.5% p.a. simple interest for a period of 8 months. How much interest does she earn? A. \$65.00 B. \$75.00 C. \$78.00 D. \$936.00 |
| 12. | A furniture store adds a 56% profit margin on the cost price of furniture. The store offers a lounge chair for \$234.00. What was the cost price of the chair? A. \$84.00 B. \$150.00 C. \$160.00 D. \$178.00 |
| 13. | April has \$7500 to invest and wants to earn \$1125 in interest as quickly as possible. The best simple interest rate that she can find is 6% p.a. For how long would she need to invest her money to achieve her aim? A. 2 ½ years B. 2 ¾ years C. 3 years D. 3 ¼ years |

14. Leila invested \$48 000 for 30 months in an account that paid \$10 200 in simple interest at maturity. What was the annual interest rate?

A. 7.5% pa B. 7.8% pa C. 8.2% pa D. 8.5% pa

15. Charlotte compares the price of three sizes of snack foods.

Individual Pack



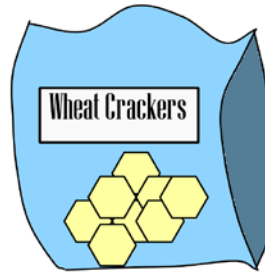
150 gram pack for
\$2.25

Snack Pack



250 gram pack for
\$3.75

Family Pack



400 gram pack for
\$5.60

Which pack gives the worst value for money?

- A. The Snack Pack is the worst value.
B. The Individual Pack is the worst value.
C. The Snack Pack and Family Pack are equal as worst value.
D. The Individual Pack and Snack Pack are equal as worst value.

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Multiple Choice Answer Sheet

Financial Maths & Simple Interest

Name _____

Completely fill the response oval representing the most correct answer.

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|-----|---|-----------------------|---|-----------------------|---|-----------------------|---|-----------------------|
| 1. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |
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| 15. | A | <input type="radio"/> | B | <input type="radio"/> | C | <input type="radio"/> | D | <input type="radio"/> |

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Non Calculator Section

ANSWERS

| Question | Working and Answer |
|----------|---|
| 1. | $32\% \text{ of } 600 = \frac{32}{100} \times \frac{600}{1} = 32 \times 6$ $\begin{array}{r} 32 \times \\ 6 \\ \hline 192 \end{array}$ <p>192 kg</p> |
| 2. | <p>Dollar loss = $64000 - 48000 = 16000$</p> <p>Percentage loss = $\frac{16000}{64000} \times \frac{100}{1}$</p> $= \frac{1}{4} \times \frac{100}{1}$ <p>= 25%</p> |
| 3. | <p>Profit = 60% of \$90</p> $= \frac{60}{100} \times \frac{90}{1}$ $= 6 \times 9$ <p>= \$54</p> |
| 4. | $I = \frac{PRN}{100}$ $= \frac{5 \cancel{250}}{1} \times \frac{\cancel{8} 4}{\cancel{2} 100} \times \frac{3}{1}$ $= 5 \times 4 \times 3$ <p>= \$60</p> |

| Question | Working and Answer |
|----------|--|
| 5. | $GST = 0.1 \times 89 = 8.90$ $\text{Price with } GST = 89.00 + 8.90$ $= \mathbf{\$97.90}$ |
| 6. | $\text{Discount} = \frac{20}{100} \times \frac{120}{1}$ $= \frac{2400}{100}$ $= \$24$ $\text{Discounted price} = 120 - 24$ $= \mathbf{\$96.00.}$ <p>Or</p> $\text{Discounted price} = \frac{80}{100} \times \frac{120}{1}$ $= \frac{9600}{100}$ $= \mathbf{\$96.00}$ |
| 7. | $\text{Profit} = 0.6 \times 2.5 \text{ million}$ $= \$1.5 \text{ million}$ $\text{Selling price} = 2.5 + 1.5$ $= \mathbf{\$4.0 \text{ million}}$ |
| 8. | $\text{Half a year} = 6 \text{ months}$ $I = \frac{P \times R \times N}{100}$ $I = 5000 \times \frac{2}{100} \times 6$ $= 50 \times 2 \times 6$ $= \mathbf{\$600}$ |
| 9. | $32\,000 = 40\% \text{ of crowd}$ $800 = 1\% \text{ of crowd}$ $\text{Neither supporters} = 15\% \text{ of crowd}$ $= 15 \times 800$ $= \mathbf{12\,000}$ |

| Question | Working and Answer |
|----------|--|
| 10. | $I = \frac{PRN}{100}$ $= 1200 \times \frac{5}{100} \times 3$ $= 12 \times 5 \times 3$ $= \$180$ <p>Is paid $180 + 1200$</p> $= \textbf{\$1 380}$ |
| 11. | <p>130% of Cost Price = 65</p> <p>10% of Cost Price = $\frac{65}{13} = \\$5$</p> <p>Profit = 30% of Cost Price = $\\$5 \times 3 = \textbf{\\$15}$</p> |
| 12. | <p>18 months = $1\frac{1}{2}$ years</p> $I = \frac{PRN}{100}$ $= \frac{3600}{1} \times \frac{7}{100} \times \frac{3}{2}$ $= 18 \times 7 \times 3$ $= \textbf{\$378}$ |
| 13. | <p>Amount paid = $100 + 55 \times 24$</p> $= 100 + 1320$ $= 1420$ <p>Interest = $1420 - 1120 = \textbf{\\$300}$</p> |
| 14. | <p>Interest = $20080 - 16000$</p> $= 4080$ $I = \frac{PRN}{100}$ $4080 = 16000 \times R \times 3$ $4080 = 48000 \times R$ $R = \frac{4080}{48000} = \frac{408}{4800} = \frac{102}{1200} = \frac{51}{600} = \frac{17}{200} = \frac{8.5}{100}$ <p>Rate is 8.5%</p> |
| 15. | <p>35% of $I = 210$</p> <p>5% of $I = 210 \div 7 = 30$</p> <p>30% of $I = 30 \times 6 = 180$</p> <p>Amount for rent = \\$180.00</p> |

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Calculator Allowed
Multiple Choice
Section

ANSWERS

| Question | Working | M C Answer |
|----------|---|------------|
| 1. | $0.45 \times 260 = 117 \text{ km}$ | C |
| 2. | $\text{Profit} = 1280 - 800 = 480$ $\text{Percentage profit} = \frac{480}{800} \times 100 = 60\%$ | A |
| 3. | $\text{Discounted Price} = 0.7 \times \160 $= \$112$ | B |
| 4. | $GST = 0.1 \times 135 = \$13.5$ $\text{Price with GST} = 135 + 13.5 = \148.50 | D |
| 5. | $I = PRN$ $= 12000 \times 0.06 \times 4$ $= \$2880.00$ | B |
| 6. | $\text{Increase} = 1378 - 1300 = \78 $\text{Percent Increase} = \frac{78}{1300} \times 100 = 6\%$ | C |
| 7. | $\text{Profit} = 0.65 \times 1.2 = \0.78 $\text{Selling price} = 0.65 + 0.78 = \1.43 $= \$1.45 \text{ (nearest 5 cents)}$ | B |

| | | |
|-----|--|----------|
| 8. | Discount price = 60% of full price $213 = 0.6 \times P$ $P = \frac{213}{0.6}$ $= \$355.00$ | D |
| 9. | Interest = PRN $= 4800 \times 0.048 \times 4$ $= \$921.60$ | C |
| 10. | $I = PRN$ $= 1680 \times 0.09 \times 2.5$ $= \$378$ Amount repaid = $1680 + 378$ $= \$2058$ | A |
| 11. | 8 months is $\frac{8}{12} = \frac{2}{3}$ of a year. Interest = PRN $= 1800 \times 0.065 \times \frac{2}{3}$ $= \$78.00$ | C |
| 12. | $\$234 = 156\%$ of cost price $234 = 1.56 \times C$ $C = \frac{234}{1.56} = \$150.00$ | B |
| 13. | $I = PRN$ $1125 = 7500 \times 0.06 \times N$ $1125 = 450 \times N$ $N = \frac{1125}{450}$ $= 2.5$ years | A |
| 14. | 30 months = 2.5 years $I = PRN$ $10200 = 48000 \times R \times 2.5$ $10200 = 120000 \times R$ $R = \frac{10200}{120000}$ $R = 0.085$ Rate is 8.5% pa | D |

| | | |
|-----|---|----------|
| 15. | $\text{Individual Pack cost per gram} = \frac{225}{150} = 1.5 \text{ cents per gram}$ $\text{Snack Pack cost per gram} = \frac{375}{250} = 1.5 \text{ cents per gram}$ $\text{Family Pack cost per gram} = \frac{560}{400} = 1.4 \text{ cents per gram}$ <p>The Individual and Sanck Packs are equally worst value for money.</p> | D |
|-----|---|----------|

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Completely fill the response oval representing the most correct answer.

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