

Year 9 Term 1 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

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10 Year 9 Term 1 Week 10 Homework

10.1 Chapter Review

10.1.1 Significant figures

A significant figure is a number that is correct within some stated degree of accuracy. The rule for significant figures are:

- All non-zero digits are significant.
- Zeros between non-zero digits are significant.
- Zeros at the end of a decimal are significant.
- Zeros before the first non-zero digit in a decimal are not significant.
- Zeros after the last non-zero digit in a whole number many or may not be significant.

Exercise 10.1.1 Round off 76.543 correct to:

1. 2 significant figures _____
2. 3 significant figures _____
3. 4 significant figures _____

Exercise 10.1.2 State the number of significant figures in each of the following:

1. 8004 _____
2. 0.36 _____
3. 18.020 _____
4. 0.01201200 _____

Exercise 10.1.3 Round off each of the following correct to 3 significant figures:

1. 8280 _____
2. 364005 _____
3. 0.25949 _____
4. 194.62 _____

10.1.2 Recurring decimals

Exercise 10.1.4 Convert each of these recurring decimals to a fraction or a mixed numeral, in simplest form:

1. $0.\dot{2}\dot{7}$

2. $0.41\dot{6}$

10.1.3 Rates

- A rate is a comparison of two unlike quantities.
- A rate is a measure of how one quantity is changing with respect to another.
- To be in simplest form, a rate must be expressed as a quantity per one unit of another quantity.

Exercise 10.1.5 Complete the following equivalent rates:

1. $60 \text{ m/s} = \text{_____} \text{ km/h}$

2. $1.5 \text{ m/min} = \text{_____} \text{ km/day}$

3. $25 \text{ mL/s} = \text{_____} \text{ L/h}$

4. $1.25 \text{ t/h} = \text{_____} \text{ kg/day}$

Exercise 10.1.6 Further applications

1. Calculate the daily interest rate on a credit card if the annual rate is 18.5% p.a.

2. Convert \$734.50/quarter to an equivalent weekly rate.

10.1.4 Algebra**Exercise 10.1.7 Find the value of the following expressions if $a = 3$, $b = -4$ and $c = \frac{1}{2}$**

1. $a^2(c + b)$ _____

2. $a^2 + b^3 + c$ _____

3. $\frac{1}{c} - \frac{1}{b}$ _____

Exercise 10.1.8 Simplifying the following expressions:

1. $x^2 + 2x + 2x^2 + 3x + 3x^3 - x$ _____

2. $(-ab) \times (-bc) \times 2ab$ _____

3. $\frac{1}{4}x \times 4x^2 \times (-2x)$ _____

4. $9xy \div 3x \times 2y$ _____

5. $\frac{3x-x+2x}{2 \times 2x}$ _____

6. $\frac{5a \times 4b \times 2c}{10c \times b \times 8}$ _____

7. $\frac{3}{2x} - \frac{1}{3x}$

8. $\frac{x}{3p} + \frac{3x}{4p}$

9. $\frac{2x}{3a} + \frac{y}{4a}$

10. $\frac{2}{x} \times \frac{x}{3} \times \frac{9x}{4}$

Exercise 10.1.9 Simplify each expression by expanding the grouping symbols and then collecting like terms.

1. $5(a + 7) - 3(a + 6)$

2. $5(b - 5) - 3(b + 3)$

3. $c(c - 4) - 5(c - 4)$

Exercise 10.1.10 Expand and simplify each of these expressions:

1. $(2m - n)(2m + n)$

2. $(2n + m)(n + 2m)$

3. $(3p + 2q)(2p + 3q)$

4. $(2x + 3y)^2$

5. $5(x - 5)^2 - 4(x - 4)^2 + 3(x - 3)^2$

10.1.5 Consumer arithmetic**Exercise 10.1.11**

1. Due to the economic downturn, the employees at a small financial company have their pay reduced by 8%. Calculate the new annual pay for an employee who previously earned \$920 per week.

2. A real estate agent is paid a commission of 3% on the first \$200,000 of the value of a property and 2% of the remaining value. Find the total commission on the sale of a house sold for \$585,000.

3. Raymond normally earns \$712.50 for a 38-hour work. For how many hours would he have work in a week where his total pay is \$825.00, if all overtime is paid at the one and a half times rate?

4. Jane purchased a LCD TV with a marked price of \$1500 at the mid-year sales, where everything in the store was advertised at 15% off. She was also given a further discount of 3% because she paid cash. How much did she pay for the chair?

5. A manufacturer sells MP3 player to a wholesaler at cost plus 20%. The wholesaler then marks up the price by a further 25% and sells them to a retailer. The retailer then sells the MP3 player for \$42.00 each, making a profit of 40%. How much would it cost to manufacture 2000 MP3 player?

10.1.6 Equations, inequations and formulae**Exercise 10.1.12 solve the following number problems:**

1. *Two-fifths of a number increased by 5 is 13. What is the number?*

2. *Nine times a number diminished by 27 is 27. Find the number.*

3. *Three tenths of a number is one more than two fifths of the number. What is the number?*

4. *Solve this equation $\frac{x+3}{4x} = 5 + \frac{1}{x}$*

5. *One number is three times more than another number. The sum of the large number are twice the smaller number is 12. Find the numbers.*

6. *The difference of two numbers is 28. The large number is 8 more than ten times the small number. What are the numbers?*

7. *A rocket plus its fuel weighs 5200 kg. After one quarter of fuel is used, the rocket and the remaining fuel weigh 4600 kg. Find the weight of the rocket?*

10.2 Maths challenge**Exercise 10.2.1**

1. If x and y are non-negative integers and $3x + 4y = 96$, how many pairs (x, y) are there?

- A. 6 B. 8 C. 9 D. 10 E. 12

2. Tickets to a concert cost \$9 for an adult and \$6 for a child. If a total of 120 adults and children attended the concert and \$840 was collected, What is the difference of the number of children and the number of adults?

- A. 40 B. 50 C. 60 D. 70 E. 80

3. When the digits of a two-digit number, neither digit zero, are reversed the number formed is 36 less than the original number. the sum of the digits of the original number could be:

- A. 4 B. 6 C. 15 D. 16 E. 18

10.3 Miscellaneous exercise

Exercise 10.3.1

1. The following currency conversions show the value of 1 Australian dollar (AUD\$1) in USD\$, EURO and NZD\$.

$AUD\$1 = USD\0.6402	$AUD\$1 = 0.5054 \text{ EURO}$	$AUD\$1 = NZD\1.2733
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Use these currency conversions to convert:

(a) AUD\$50 into USD\$ _____

(b) AUD\$25 into EURO _____

(c) USD\$1200 into NZD\$ _____

2. Simplifying the following expressions:

(a) $\frac{5a \times 4b \times 2c}{10c \times b \times 8c}$

(b) $\frac{8}{a} \times \frac{2a}{15} \div \frac{8}{3}$

(c) $x(x + y) + y(x + y)$

(d) $a(2a + b) + b(a + 2b)$

3. Find an expression for the shaded area of the following figure. Expand and simplify your answer.


