Year 9 Term 2 Homework

Student Name: _____

Grade: _____

Date: _____

Score: _____

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10   Year 9 Term 2 Week 10 Chapter Review

10.1   Equations and inequations

10.1.1   Equations with pronumerals on both sides

Exercise 10.1.1 Solve each of the following equations:

1. $3x + 12 = 5x - 24$

2. $4x - 9 = 2x + 15$

3. $7x - 26 = 2 + 19x$

4. $15 + 3a = 35 + 10a$

5. $4a + 14 = 52 - 5a$

6. $23 - 7b = 13 - 2b$

7. $9b + 2 = 7b + 12$

8. $-6 - 2c = 3 + 25c$

10.1.2   Equations with grouping symbols

Exercise 10.1.2 Solve the following equations:

1. $-3(x - 5) = 24$

2. $-5(y + 2) = 60$

3. $11(3 - 2x) = 121$

4. $-2(6 - 5y) = 38$

5. $6(a - 2) = 5(a + 1)$

6. $9(2b - 3) = 3(b + 6)$

7. $8(3c - 2) - 2(5 - 4c) - 58 = 0$

8. $25d - 4(2d - 7) = 3(3d + 5) + 90$

10.1.3 Equations with one fraction

Exercise 10.1.3 Solve the following equations:

1. $\frac{5a}{6} - 3 = 12$

2. $3 + \frac{5b}{6} = 4$

3. $\frac{4-5c}{3} = 9$

4. $\frac{12-5d}{6} = 12$

5. $\frac{2a+4}{3} - 2 = 8$

6. $\frac{2b-12}{12} + 3 = -15$

7. $\frac{4c-2}{6} = 9 - 2c$

8. $\frac{5}{3}(d-3) = d + 4$

10.1.4   Equations with more than one fraction

Exercise 10.1.4 Solve the following:

1. $\frac{x}{3} + \frac{x}{4} = 6$

2. $\frac{2y}{3} + \frac{3y}{4} = 5$

3. $\frac{7a}{8} - \frac{4a}{5} = 6$

4. $\frac{2b}{5} = 11 - \frac{b}{3}$

5. $\frac{3c}{8} + \frac{2c}{5} = \frac{c}{4} + 21$
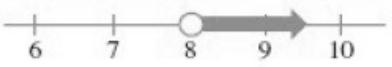
6. $\frac{4-7d}{5} = \frac{2-11d}{7}$

10.1.5   Inequations

Exercise 10.1.5 State the inequality that has been graphed on each of the number lines.

1. _____

2. _____
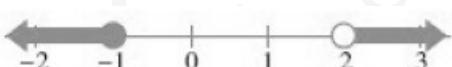
3. _____

4. _____

5. _____

Exercise 10.1.6

1. $\frac{3x+7}{4} \le 5$ _____

2. $2(7x - 6) \ge 8$ _____

3. $-9(3x - 2) \ge -36$

4. $\frac{2-a}{2} - \frac{a-3}{3} \le 8$

5. $15 \le \frac{b}{2} + \frac{b}{3} \le 20$

10.2   Formulae

10.2.1   Evaluate the subject of a formula

Exercise 10.2.1

1. If $F = \frac{mv^2}{r}$, find the value of:

  (a) **m** *when F = 20, v = 5 and r = 20.*

  _____

  _____

  _____

  (b) **r** *when F = 56.32, v = -12.8 and m = 22.*

  _____

  _____

  _____

  (c) **v** *when F = 49, m = 10, r = 2.5 and v > 0.*

  _____

  _____

  _____

2. If $m = \frac{y_2 - y_1}{x_2 - x_1}$

  (a) y_2 *when* $m = 4$, $y_1 = 5$, $x_2 = 8$ *and* $x_1 = 4$

  _____

  _____

  _____

  (b) y_1 *when* $m = -3$, $y_2 = 13$, $x_2 = -5$ *and* $x_1 = 42$

  _____

  _____

  _____

  (c) x_2 *when* $m = \frac{3}{4}$, $y_2 = 21$, $y_1 = 6$ *and* $x_1 = 4$

  _____

  _____

  _____

10.2.2   Changing the subject of a formula

Exercise 10.2.2 Make x the subject of each formula:

1. $\frac{x}{3} + \frac{x}{7} = y$

2. $\frac{x-a}{2} = \frac{b+c}{3}$

3. $\frac{x^2}{4} = \frac{9}{a^2}$

4. $b = \frac{a-c}{x-b}$

5. $b = \frac{x-1}{x+1}$

6. $4(2x - 3y) = 3(4x + 2y)$

10.3   Miscellaneous Exercises

Exercise 10.3.1 Change one number in the equation $5x + 6 = 2x + 21$ **so than the solution is:**

   1. x = 14

   2. x = 0

   3. x = -7

Exercise 10.3.2 If $p = 2q + 9$**, find the values for p and q given that p is 5 more than q.**

Exercise 10.3.3 If $x = 11 - 3y$**, find the values for x and y given that x is equal to 25 more than the product of 4 and y.**

Exercise 10.3.4 Further applications:

1. $\frac{2x+1}{3} - \frac{x-8}{5} = 8$

2. $\frac{1}{3}y - \frac{3}{4}(y-2) = \frac{5}{6}y$

3. $\frac{5}{2x} + \frac{3}{x} = \frac{1}{3}$
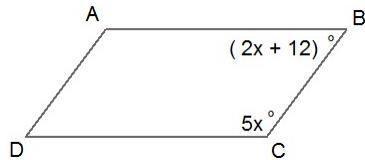
4. $\frac{x+1}{4x} = 7 + \frac{1}{x}$

5. $\frac{x-1}{x+5} = \frac{x-2}{x+3}$
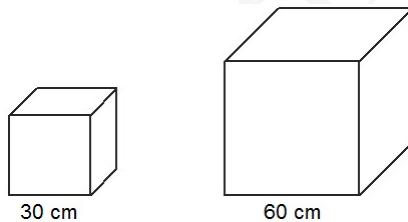
10.4   Maths Challenge

Exercise 10.4.1

1. *In a parallelogram ABCD, $\angle C = 5x°$, $\angle B = (2x + 12)°$. Find the number of degrees in $\angle D$.*

2. *Tracy has two empty cube-shaped containers with sides of 30 cm and 60 cm. She fills the large container with water and then pours some of the water into the small container until it is full. What is the water level of the remaining water in the large container?*

3. *Adam, Bonnie and Carl work in the same office. Adam age is 4 years more than twice Carl's age. Bonnie is 5 year younger than Carl. The average of the three ages is 41. Find the age of each person.*