

Year 8 Term 3 Homework

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

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5 Year 8 Term 3 Week 5 Homework

5.1 Equations

5.1.1 Two-step equations

Exercise 5.1.1 Solve the following equations leaving your answers as fractions in their simplest terms:

1. $2y + 7 = 12$

2. $5y = 7y + 9$

3. $4x - 9 = 6$

4. $8x - 13 = 4$

5. $13z = 8z + 7$

6. $12y - 15 = 7$

7. $5t + 15 = 3t$

8. $8y + 13 = 6y$

5.1.2 Equations with pronumerals on both sides**Exercise 5.1.2 Solve the following equations:**

1. $9m - 15 = 5m - 3$

2. $5t + 13 = 9t + 25$

3. $11p - 12 = 7p + 8$

4. $4y + 11 = 19 - 2y$

5. $8(x + 7) = 5(x + 4)$

6. $7 - 3y = 22 - 8y$

7. $19 + 8(y - 9) = 7(2y - 5)$

8. $25 - 7z = 27 - 4z$

5.1.3 Equations with grouping symbols**Exercise 5.1.3 Solve the following equations:**

1. $3(9x + 4) - 6(2x) = 117$

2. $9y + 5(2y - 3) = 137$

3. $2(8z - 9) + 6(5 + z) = 100$

4. $(9x + 4) + (5x - 3) = 29$

5. $4(3y - 5) + 6(7 + y) = 58$

6. $7(4z + 2) - 6(9z) = -194$

7. $2(6x + 3) - 8(9x) = -414$

8. $7(8 + 6y) + (4y - 2) - (5 + 9y) = 160$

5.1.4 Equations arising from substitution**Exercise 5.1.4**

1. If $X = 2Y + 3Z$, find the value of Y when $X = 12$ and $Z = 8$.

2. If $y = mx + b$, find the value of x when $y = 24$, $m = 2$ and $b = -6$.

3. If $M = \frac{3(K+2)}{5}$, find the value of K when $M = 6$.

4. If $A = \frac{h}{2}(a + b)$, find the value of a when $A = 30$, $h = 6$ and $b = 7$.

5. If $V = Q^2L$ and $Q > 0$, find the value of L when $V = 50 \text{ cm}^3$ and $Q = 5 \text{ cm}$.

6. If $c^2 = a^2 + b^2$, and $a > 0, b > 0$, find the value of a when $c = 17$ and $b = 15$.

5.1.5 Equations with fractions

Multiply all terms by the LCM and remove all fractions from the equation.

Exercise 5.1.5

1. $\frac{x+7}{4} = 6$

2. $\frac{3x-4}{6} = 2$

3. $\frac{4(x+3)}{7} = 5$

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

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

6. $\frac{x-7}{5} - \frac{x}{3} = 2$

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

5.1.6 Number problems

Exercise 5.1.6

1. Find two consecutive even integers such that five times the smaller number decreased by the larger number is 14.

2. 6 more than 5 times a number is equal to the number increased by 26. What is the number?

3. If the product of six and a number is increased by 6, the result is 72. Find the number.

4. Nine more than seven times a number is equal to the number increased by 75. What is the number?

5. If the product of five and a number is increased by 9 the result is 54. Find the number.

6. The product of five and some number is equal to the sum of that number and 20. What is the number?

7. The sum of the largest and ten times the smallest of three consecutive numbers is equal to 68. Find the numbers.

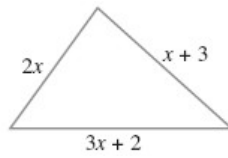
5.1.7 Problem solving**Exercise 5.1.7**

1. A watermelon has a diameter of 15 cm and costs \$5. Another watermelon has a diameter of 30 cm and costs \$12. Which is the better buy? Why?

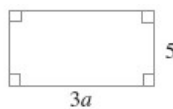
2. If $\frac{x}{4} = 5$, what is the value of $\frac{x}{5} - 4$?

3. Form an equation using the given perimeter or area, then solve it to find the value of the pronumeral. (All measurements are in cm.)

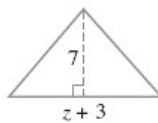
- (a) If the perimeter of the triangle is equal to 34 cm, find the value of x .



- (b) If the area of the rectangle is equal to 60 cm^2 , find the value of a .



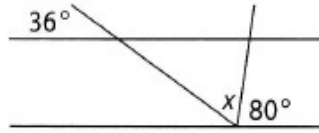
- (c) If the area of the triangle is equal to 28 cm^2 , find the value of z .



5.2 Maths Challenge

Exercise 5.2.1

1. How big is the angle x ? _____



2. Shell V-power petrol at s cents per litre costs 6 cents per litre more than unleaded. How many cents does it cost to buy u litres of unleaded petrol?

- A. $us - 6$ B. $s-6$ C. $s+6$ D. $u(s-6)$ E. $(s+6)u$

3. A quiz has twenty questions with seven points awarded for each correct answer, two points deducted for each wrong answer and zero for each question omitted. James scores 87 points. How many questions did he omit?

4. If $\frac{1}{x} + \frac{1}{y} = 1$ and $x + y = 2$, what is the value of xy ?

5. All edges of a rectangular prism are measured in whole centimetres. One edge is 10 cm long. The volume of the prism is 60 cm^3 . What could be the area of a cross-section of the prism?

- A. 40 cm^2 B. 24 cm^2 C. 36 cm^2 D. 30 cm^2

5.3 Miscellaneous Exercises**Exercise 5.3.1 Simplify the following:**

1. $\frac{2}{3}(2x + 3y) - \frac{1}{6}x + \frac{4}{9}y$

2. $\frac{3}{4}[7x - (2 - 3x)]$

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

Exercise 5.3.2 Solve the following:

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

2. $\frac{3}{2x} - \frac{1}{6} = \frac{2}{x}$

5.4 Quiz

Exercise 5.4.1

1. Solve the equation $\frac{2x+3}{5} = \frac{x-2}{3} + 2$

2. Solve the inequation $\frac{x}{2} - 3 \leq \frac{3x}{4} + 2$

3. When John was 14, his father was three times his age. Now his father is only twice John's age. How old are they now?

4. Tony adds together five consecutive even integers. Write a simplified expression for the sum all five numbers, if the largest one is $3n + 5$.

5. If Joe has \$60 more than Ken, and David has \$130 less than Joe, how much does each person have if they have \$320 altogether?
