

Year 9 Term 1 Homework

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

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7 Year 9 Term 1 Week 7 Homework

7.1 Equations, inequations and formulae

7.1.1 Equations with grouping symbols

Exercise 7.1.1 Solve the following equations:

1. $4(x + 3) = 2(x + 8)$

2. $3(y + 2) = 4(y - 3) - 5$

3. $12(3a - 2) = 20a - 72$

4. $10(3b + 5) = 6(b + 2) - 2(3b - 4)$

5. $2(2c + 2) + 3(5c - 2) = 3(c + 10)$

6. $8(3d - 2) - 2(5 - 4d) - 16 = 54$

7.1.2 Equations with one fraction**Exercise 7.1.2**

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

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

3. $3a + 11 = \frac{2}{3}a$

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

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

6. $\frac{4d-10}{6} = 9 - 2d$

7.1.3 Equations with more than one fraction**Example 7.1.1 Solve:** $\frac{x}{3} + \frac{x}{4} = 15$

$$\begin{aligned} \text{Solution: } \left(\frac{x}{3} \times 12\right) + \left(\frac{x}{4} \times 12\right) &= 15 \times 12 && [\text{LCM}(3, 4) = 12] \\ 4x + 3x &= 180 \\ 7x &= 180 \\ \therefore x &= \frac{180}{7} \\ x &= 25\frac{5}{7} \end{aligned}$$

Exercise 7.1.3 Solve the following equations:

1. $\frac{2a}{3} + 7 = \frac{a}{2} + 8$

2. $\frac{x}{3} + \frac{x}{4} = 14$

3. $\frac{3x}{5} + \frac{x}{2} = 44$

4. $\frac{6y}{7} - \frac{2y}{3} = 16$

5. $\frac{4p}{9} + \frac{5p}{12} = 31$

Exercise 7.1.4 Solve the following equations by expressing the fractions with a common denominator and equating the numerators.

1. $\frac{a+2}{8} = \frac{3}{16}$

2. $\frac{b-5}{12} = \frac{1}{3}$

3. $\frac{3c-1}{21} = \frac{2}{3}$

4. $\frac{7d+4}{30} = \frac{5}{6}$

5. $\frac{3-5e}{42} = \frac{8}{7}$

6. $\frac{8-4f}{20} = \frac{4}{5}$

7.2 Miscellaneous exercises

Exercise 7.2.1 Solve the following equations:

1. $\frac{2x}{5} = 11 - \frac{x}{3}$

2. $\frac{y}{8} + \frac{y}{6} = 1 + \frac{y}{4}$

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

4. $\frac{3b}{8} + \frac{2b}{5} = \frac{b}{4} - 21$

5. $\frac{c}{4} + 21 = \frac{5c}{6}$

6. $\frac{d}{4} - \frac{2d}{5} = \frac{d}{10} - 5$

Exercise 7.2.2 Solve the following equations:

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

2. $\frac{9y+4}{8} = \frac{11y+6}{10}$

3. $\frac{4-7a}{5} = \frac{2-11a}{7}$

4. $\frac{b+1}{6} - 6 = \frac{b+5}{4}$

5. $\frac{2c+3}{5} + \frac{7c-2}{8} = 8$

6. $\frac{2}{5}d = \frac{1}{2}(d-1)$

7.2.1 Worded Problems**Exercise 7.2.3 Solve following worded problems:**

1. *The cost of a cricket ball is 90 cents more than the cost of a tennis ball. If 3 cricket balls and 5 tennis balls cost \$21.90, find the cost of each ball.*

2. *The difference between a number and 9 is tripled. The result is 45. Find the number.*

3. *A certain number is doubled, then decreased by 9. The result is equal to 13 more than the number. Find the number.*

4. *One-third of a number is equal to 5 less than twice the number. What is the number?*

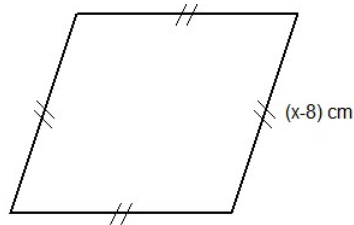
5. *A certain number is decreased by 4, doubled, then divided by 5. The result is 6. Find the number.*

6. *Eight less than three-quarters of a number is 31. What is the number?*

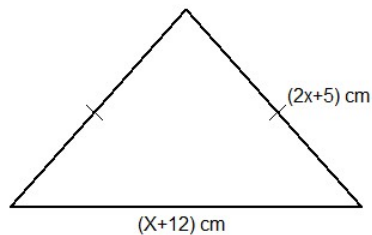
7.2.2 Problem solving

Exercise 7.2.4 Form an equation and solve it to find the value of the pronumeral in each of these.

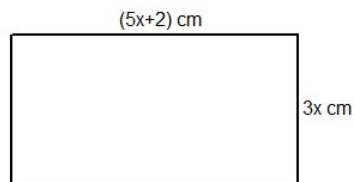
1. *If the perimeter of the rhombus is 48 cm. What is x equal to?*



2. *If the perimeter of the triangle is 92 cm. Find the value of x .*



3. *If the perimeter of the rectangle is 108 cm. Find the value of x .*



7.3 Maths challenge

Exercise 7.3.1

1. *Three tenths of a number is one more than two sevenths of the number. What is the number?*

2. *At Sydney Boys High, each of the 916 students voted either "YES" or "NO" on whether to change the school uniform. There were 862 more "YES" than "NO" votes. The number of students who voted "NO" was*

3. *A number is added to one third of itself. The result is 72. What is the number?*

4. *If $\frac{1}{x} + \frac{1}{y} = 10$ and $x + y = 2$, what is the value of xy ?*

5. *The fraction $\frac{1}{4}$ is tripled by adding the same number to both numerator and denominator. What is the number?*

6. *How many distinct pairs (a, b) , where a and b are integers, not necessarily positive, satisfy the equation $\frac{1}{a} + \frac{b}{5} = \frac{1}{10}$?*
