SHARP

Worksheet 9: Algebraic Equations (Term 2)

Grade 8 Mathematics

1. For each of the stories below, write down the mathematical expression and solve for the unknown amount.

   a) Joanna has a certain amount of money. Her little sister has R100 less than her. Together they have R550. How much money does Joanna have?

   b) A certain recipe asks for a certain weight in butter. The ratio of butter to the rest of the recipe is 2:5. If the total weight of the recipe is 560g, how much butter must be added to the recipe?

   c) A certain product costs R5 to make, and has a set monthly setup cost of R600. If the business makes a profit of R3 per item of product, how many items would it need to sell before making a profit?

   d) Peter is three years younger than his brother Hugo. 10 years ago, Hugo was four times Peter's age. How old are the boys now?

   e) Thabo spends a certain amount of money. His sister spends twice the amount that Thabo spends. If they spend R420 altogether, how much money did Thabo spend?

2. Solve the following equations for the unknown variable:

   a) $17 = 4x + 2$

   b) $3x - 2 = 4x + 5$

   c) $11x + 5 = 9x - 3$

   d) $6x + 12 = 18 - 3x$

   e) $3(x + 2) = 7$

   f) $\frac{1}{2}x + 7 = 0$

   g) $4(x + 5) = 2(x - 3)$

   h) $7(x - 9) = 10x$

   i) $2x - 8 = 9$

   j) $6x - 12 = 4x + 8$

   k) $\frac{1}{3}x + 3 = 3$

   l) $8m - 13 = 3$

   m) $\frac{1}{4}(x - 8) = 3$

   n) $16x + 20 = 4x - 20$

   o) $6(x - 6) + 2 = 5x - 12$

   p) $9x - 18 = 0$

   q) $7x - 10 = 11$

   r) $14x + 1 = 15$

3. Choose the correct answer for each of these:

a) If $y = 3x - 7$ and $x = 3$ then

A. $y = -1$ B. $y = 16$ C. $y = 2$

b) If $y = 3x - 7$ and $y = 11$ then

A. $x = 6$ B. $x = 2$ C. $x = -1$

c) If $y = -4x + 8$ and $x = 2$ then

A. $y = 16$ B. $y = -4$ C. $y = 0$

d) If $y = -4x + 8$ and $y = -20$ then

A. $x = 5$ B. $x = 7$ C. $x = 9$

e) If $m = \frac{n}{5} + 2$ and $n = 10$ then

A. $m = 4$ B. $m = \frac{12}{5}$ C. $m = 0$

f) If $m = \frac{n}{5} + 2$ and $m = 3$ then

A. $n = 15$ B. $n = 3$ C. $n = 5$

g) If $48 = xy$ and $x = 8$ then

A. $y = 6$ B. $y = 4$ C. $y = 8$

h) If $48 = xy$ and $y = 12$ then

A. $x = 6$ B. $x = 4$ C. $x = 8$

i) If $y = 2(x + 3)$ and $x = -3$ then

A. $y = -12$ B. $y = 4$ C. $y = 0$

j) If $y = 2(x + 3)$ and $y = 6$ then

A. $x = 0$ B. $x = -6$ C. $x = 1$