



Rosary School \ Marj Elhamam

Name : _____

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Subject: Practice Worksheet (3) /unit (2)

Grade : 7 ()

Equations and formulae

❖ 2.1 Solving One-Step Equations

Q1: Solve each equation. Show your working.

a) $x - 8 = 15$
 $+8 \quad +8$

$x = 23$

b) $y + 6 = 20$
 $-6 \quad -6$

$y = 14$

c) $\frac{7t}{7} = \frac{49}{7}$

$t = 7$

d) $4 \times \frac{m}{4} = 9 \times 4$

$m = 36$

e) $a - 12 = 5$
 $+12 \quad +12$
 $a = 17$

Q2: Substitute the values given into each formula.

Solve the equation to find the value of the unknown

a) $t = k - 6$

Find k when $t = 48$

$48 = k - 6$
 $+6 \quad +6$

$54 = k$

b) $s = 8 + n$

Find n when $s = 50$

$$\begin{array}{r} 50 = 8 + n \\ -8 \quad -8 \end{array}$$

$$\boxed{42 = n}$$

c) $y = kx$

Find k when $y = 72$ and $x = 8$

$$\begin{array}{r} 72 = k \times 8 \\ 8 \quad 8 \end{array}$$

$$\boxed{9 = k}$$

d) $T = \frac{P}{4}$

Find P when $T = 16$

$$4 \times 16 = \frac{P}{4} \times 4$$

$$\boxed{P = 64}$$

❖ 2.2 Solving Two-Step Equations

Q3: Solve each equation step by step.

a) $3x + 5 = 20$

$$\begin{array}{r} 3x = 15 \\ 3 \quad 3 \end{array}$$

$$\boxed{x = 5}$$

c) $\frac{n}{3} + 4 = 10$

$$3 \times \frac{n}{3} = 6 \times 3$$

$$n = 18$$

b) $2y - 7 = 9$

$$\begin{array}{r} 2y = 16 \\ 2 \quad 2 \end{array}$$

$$\boxed{y = 8}$$

d) $9p - 6 = 30$

$$\begin{array}{r} 9p = 36 \\ 9 \quad 9 \end{array}$$

$$\boxed{p = \frac{36}{9}}$$

$$\boxed{p = 4}$$

$$2) 4q + 2 = 18$$

$$\quad \quad -2 \quad -2$$

$$\frac{4q}{4} = \frac{16}{4}$$

$$\boxed{q = 4}$$

❖ 2.3 More Complex Equations

Q4: Solve the following.

$$a) \frac{5(x - 1)}{5} = \frac{20}{5}$$

$$x - 1 = 4$$

$$\quad +1 \quad +1$$

$$\boxed{x = 5}$$

$$c) 2(m + 6) = m + 14$$

$$2m + 12 = m + 14$$

$$\quad -m \quad \quad -m$$

$$m + 12 = 14$$

$$\quad -12 \quad -12$$

$$\boxed{m = 2}$$

$$e) \frac{(3x + 7)}{2} = 10 \times 2$$

$$3x + 7 = 20$$

$$\quad -7 \quad -7$$

$$\frac{3x}{3} = \frac{13}{3}$$

$$\boxed{x = \frac{13}{3}}$$

$$b) 3y + 4 = 2y + 10$$

$$\quad -2y \quad -2y$$

$$y + 4 = 10$$

$$\quad -4 \quad -4$$

$$\boxed{y = 6}$$

$$d) 8a - 3 = 2a + 15$$

$$\quad -2a \quad -2a$$

$$6a - 3 = 15$$

$$\quad +3 \quad +3$$

$$\frac{6a}{6} = \frac{18}{6}$$

$$\boxed{a = 3}$$

❖ 2.4 Working with Formulae

Q5:

- a) The area of a rectangle is given by $A = lw$.

If the area is 84 cm^2 and the length is 12 cm , find the width.

$$A = L \times w$$

$$\frac{84}{12} = \frac{12w}{12}$$

$$\boxed{7 = w}$$

- b) The formula for speed is $s = \frac{d}{t}$.

A train travels 300 km in 5 hours. What is its average speed?

$$s = \frac{d}{t}$$

$$s = \frac{300}{5}$$

$$\boxed{s = 60}$$

- c) The perimeter of a rectangle is given by $P = 2l + 2w$.

If the perimeter is 64 m and the length is 18 m, find the width.

$$64 = 2 \times 18 + 2w$$

$$\begin{array}{rcl} 64 & = & 36 + 2w \\ -36 & & -36 \end{array}$$

$$\frac{28}{2} = \frac{2w}{2}$$

$$\boxed{14 = w}$$

Q6: Write a formula for converting.

a) Minutes to seconds

$$S = \text{min} \times 60$$

b) days to years

$$\text{Years} = \frac{\text{Days}}{365}$$

c) years to weeks

$$\text{Weeks} = \text{Years} \times 52$$

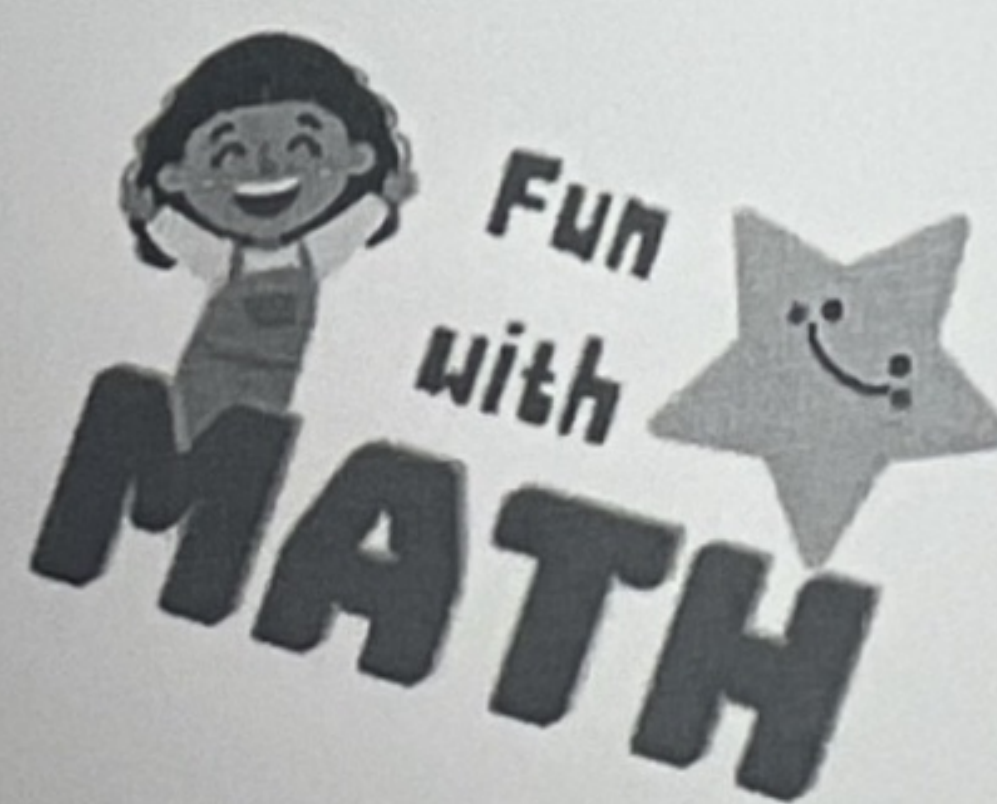
⚡ Challenge Question:

Solve: $\frac{3(x-2)}{3} = 2x + 2.$

$$\cancel{x} - 2 = 2x + 2$$
$$\cancel{-x} \quad \quad \quad -x$$

$$-2 = x + \cancel{2}$$
$$-2 \quad \quad \quad \cancel{-2}$$

$$\boxed{-4 = x}$$



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