

Angeles City Science High School

Mathematics 9

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Section: 9 - Adenine

Practice C

Determine the value of the unknown in order for the two ratios form a proportion.

1. $3:15 = x:10$
 $\frac{3}{15} = \frac{x}{10}$
 $3(10) = 15(x)$
 $30 = 15x$
 $\frac{30}{15}$
 $x = 2$

2. $5:6 = 25:y$
 $\frac{5}{6} = \frac{25}{y}$
 $5(y) = 6(25)$
 $5y = 150$
 $\frac{5y}{5} = \frac{150}{5}$
 $y = 30$

3. $2:3 = 28:12$
 $\frac{2}{3} = \frac{28}{12}$
 $12(2) = 3(28)$
 $12z = 84$
 $\frac{12z}{12} = \frac{84}{12}$
 $z = 7$

4. $x+2:4 = 36:48$
 $\frac{x+2}{4} = \frac{36}{48}$
 $48(x+2) = 4(36)$
 $48x + 96 = 144 - 96$
 $48x = 48$
 $\frac{48x}{48} = \frac{48}{48}$
 $x = 1$

5. $1:3 = y-7:75$
 $\frac{1}{3} = \frac{y-7}{75}$
 $1(75) = 3(y-7)$
 $75 = 3y - 21$
 $-3y = -75 - 21$
 $-3y = -96$
 $\frac{-3y}{-3} = \frac{-96}{-3}$
 $y = 32$

Practice D

Answer the following items.

1. Find the value of $y:x$ if $3y-x:2 = 3y-2x:7$

$$\frac{3y-x}{2} = \frac{3y-2x}{7}$$

$$7(3y-x) = 2(3y-2x)$$

$$21y - 7x = 6y - 4x$$

$$21y - 6y = 7x - 4x$$

$$\frac{15y}{15} = \frac{3x}{15} \quad \frac{15y}{15} = \frac{3x}{15}$$

$$\frac{15y}{15} = \frac{3}{15}$$

$$\frac{y}{x} = \frac{1}{5}$$

$$y:x = 1:5$$

2. If $x:y = 4:3$, Find $2x+y:x-y$

$$\frac{x}{y} = \frac{4}{3}$$

$$x = 4k$$

$$y = 3k$$

$$\frac{2(4k) + 3k}{4k - 3k} = 0$$

$$\frac{8k + 3k}{4k - 3k} = 0$$

$$\frac{11k}{1k}$$

$$\frac{2x+y}{x-y} = \frac{11}{1}$$

$$2x+y:x-y = 11:1$$

3. If $g:h=4:3$, evaluate $4g+h:8g+h$

$$\frac{g}{h} = \frac{4}{3}$$

$$g = 4k$$

$$h = 3k$$

$$\frac{4g+h}{8g+h} = \frac{4(4k)+3k}{8(4k)+3k} = 0$$

$$\frac{16k+3k}{32k+3k} = 0$$

$$\boxed{4g+h:8g+h = 19:35}$$

4. Solve for the ratio $x:y$ if $x^2 + 3xy - 10y^2 = 0$

$$x^2 + 3xy - 10y^2 = 0$$

$$(x+5y)(x-2y) = 0$$

$x+5y=0$	$x-2y=0$
$x = -5y$	$x = 2y$
$\frac{x}{y} = -5$	$\frac{x}{y} = 2$
$\frac{x}{y} = -5$	$\frac{x}{y} = 2$

$$\boxed{x:y = -5:1 \text{ or } x:y = 2:1}$$

5. If x, y and z represent three positive numbers such that $x:y:z = 4:3:2$ and $x^2 - y^2 - z^2 = 27$, find the values of x, y and z .

$$x = 4k \quad (4k)^2 - (3k)^2 - (2k)^2 = 27$$

$$y = 3k \quad 16k^2 - 9k^2 - 4k^2 = 27$$

$$z = 2k \quad 3k^2 = 27$$

$x = 4(3) = 12$
$y = 3(3) = 9$
$z = 2(3) = 6$