

## 4.3 – Solve Equations Involving Fractions Worksheet #1

MPM1D

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1. Solve

a)  $\frac{1}{3}(x - 2) = 5$

b)  $4 = \frac{-2}{3}(p - 2)$

c)  $\frac{m+4}{3} = 7$

d)  $-14 = \frac{2(h-3)}{5}$

2. Solve

a)  $\frac{y-4}{5} = -6$

b)  $\frac{1}{4}(u - 5) = -2$

c)  $3 = \frac{2}{5}(n + 7)$

d)  $16 = \frac{3(v+7)}{2}$

3. Find the root of each equation

a)  $\frac{m-3}{4} = \frac{m+1}{3}$

b)  $\frac{w-1}{4} = \frac{w+2}{3}$

c)  $\frac{1}{4}(x-3) = \frac{1}{3}(x-2)$

d)  $\frac{1}{5}(y-3) = \frac{1}{6}(y+4)$

4. Find the root of each equation.

a)  $\frac{2}{3}(5n-1) = -\frac{3}{5}(n+2)$

b)  $-\frac{3}{4}(d+3) = \frac{4}{5}(3d-2)$

c)  $\frac{3c-2}{5} = \frac{2c-1}{3}$

d)  $\frac{5-2a}{4} = \frac{6-a}{5}$

5. Each of the following solutions contains an error. Identify the error and describe how to correct it.

**a)**

$$\frac{x-3}{5} = \frac{x+1}{4}$$
$$5(x-3) = 4(x+1)$$
$$5x-15 = 4x+4$$
$$5x-15-4x+15 = 4x+4-4x+15$$
$$x = 19$$

**b)**

$$\frac{1}{3}(3y-2) = \frac{1}{4}(y+3)$$
$$12 \times \frac{1}{3}(3y-2) = 12 \times \frac{1}{4}(y+3)$$
$$3y-2 = y+3$$
$$3y-2-y+2 = y+3-y+2$$
$$2y = 5$$
$$\frac{2y}{2} = \frac{5}{2}$$
$$y = \frac{5}{2}$$

6. Find the height of a triangle with base 10 cm and area 50 cm<sup>2</sup>.

7. Solve

a)  $\frac{3p}{4} + \frac{p-5}{3} = \frac{1}{2}$

b)  $\frac{u-3}{4} - 2 = \frac{3u}{2} + \frac{2u+1}{5}$

## Answers

1) a)  $x = 17$  b)  $p = -4$  c)  $m = 17$  d)  $h = -32$

2) a)  $y = -26$  b)  $u = -3$  c)  $n = \frac{1}{2}$  d)  $v = \frac{11}{3}$

3) a)  $m = -13$  b)  $w = -11$  c)  $x = -1$  d)  $y = 38$

4) a)  $n = \frac{-8}{59}$  b)  $d = \frac{-13}{63}$  c)  $c = -1$  d)  $a = \frac{1}{6}$

5) a) The error is in the second line,  $5(x-3)=4(x+1)$ . The numerators on each side of the first line were multiplied by their own denominators. The correct step should be to multiply both sides by 20 (the LCD).

b) The third line is incorrect. In the previous line, the denominators and the 12 were eliminated instead of being simplified. The third line should be  $4(3y-2)=3(y+3)$

6) 10 cm

7) a)  $p = 2$  b)  $u = \frac{-59}{33}$