

HW SOL Review 11.1 to 11.3

May 25, 2018 9:26 AM

Name: _____

Date: _____

Math 8 Review 11.1 to 11.3

1. Solve each of the following equations. Show all your work and steps:

i) $8a + 6a = 28$

$$\begin{aligned} 14a &= 28 \\ \frac{14}{14} & \frac{28}{14} \\ a &= 2 \end{aligned}$$

ii) $-20x + 8x = 14$

$$\begin{aligned} -12x &= 14 \\ \frac{-12}{-12} & \frac{14}{-12} \\ x &= \frac{14}{-12} = \frac{7}{-6} = -\frac{7}{6} \end{aligned}$$

iii) $5x + 13 + 7 = 3x - 4$

$$\begin{aligned} 5x + 20 &= 3x - 4 \\ -3x & \quad -3x \\ 2x + 20 &= -4 \\ -20 & \quad -20 \\ 2x &= -24 \\ x &= -12 \end{aligned}$$

iv) $7n - 9 = 8 + 20$

$$\begin{aligned} 7n - 9 &= 28 \\ 7n &= 37 \\ n &= \frac{37}{7} \end{aligned}$$

v) $6x - 10 + 6x = 23$

$$\begin{aligned} 12x - 10 &= 23 \\ 12x &= 33 \\ x &= \frac{33}{12} \\ x &= \frac{11}{4} \end{aligned}$$

vi) $r + 13 + 9r = 29$

$$\begin{aligned} 10r + 13 &= 29 \\ 10r &= 16 \\ r &= \frac{16}{10} \\ r &= \frac{8}{5} \end{aligned}$$

vii) $-20 + 8r = -14r + 16$

$$\begin{aligned} +14r & \quad +14r \\ 22r - 20 &= 16 \\ +20 & \quad +20 \\ 22r &= 32 \\ r &= \frac{32}{22} \\ r &= \frac{16}{11} \end{aligned}$$

viii) $-16x + 15x + 16 = 19$

$$\begin{aligned} -x + 16 &= 19 \\ -x &= 3 \\ -1 & \quad -1 \\ x &= -3 \end{aligned}$$

ix) $\left(\frac{8x}{3}\right) + (12) = (4x) - (2)^3$

$$\begin{aligned} \frac{8x}{3} + 36 &= 4x - 6 \\ -8x & \quad -8x \\ 36 &= 4x - 6 \\ +6 & \quad +6 \\ \frac{42}{4} &= \frac{4x}{4} \\ \frac{21}{2} &= x \\ 10.5 &= x \end{aligned}$$

x) $\frac{9x}{4} - 13 = x + 6$

$$\begin{aligned} \frac{9x}{4} &= x + 19 \\ -x & \quad -x \\ \frac{9x}{4} - \frac{4x}{4} &= 19 \\ \frac{5x}{4} &= 19 \\ x &= \frac{76}{5} \end{aligned}$$

92 63
27 6

xi) $-\frac{2x}{5} - 16 = 3x + 12$

$-\frac{2x}{5} = 3x + 28$
 $-3x - 3x$
 $-\frac{2x}{5} - 3x = 28$
 $-\frac{2x}{5} - \frac{15x}{5} = 28$
 $-\frac{17x}{5} = 28$
 $\left(\frac{5}{17}\right) \cdot \frac{17x}{5} = 28 \left(\frac{5}{17}\right)$
 $x = \frac{-140}{17}$

xii) $\frac{-3x}{7} + 18 = -4x + \frac{2}{3}$

① LCD = 21

$21 \left(\frac{-3x}{7}\right) + (18)(21) = -4x(21) + \frac{2}{3}(21)$
 $-9x + 378 = -84x + 14$
 $+84x$
 $75x + 378 = 14$
 -378
 $75x = -364$
 $x = \frac{-364}{75}$

2. Solve each of the following and show all your work and steps

i) $\frac{n}{6} = \frac{6}{9}$

$6 \left(\frac{n}{6}\right) = \left(\frac{6}{9}\right) 6$
 $n = \frac{36}{9}$
 $n = 4$

ii) $\frac{8}{9} = \frac{x}{5}$

$5 \left(\frac{8}{9}\right) = \frac{x}{5} (5)$
 $\frac{40}{9} = x$

iii) $\frac{x}{8} = \frac{9}{23}$

$23 \left(\frac{x}{8}\right) = \frac{9}{23} (23)$
 $x = \frac{72}{8}$
 $x = 9$

iv) $\frac{30}{x} \cdot \frac{6}{14}$

(cross multiply)
 $30(14) = 6(x)$
 $\frac{30(14)}{6} = \frac{6x}{6}$
 $5(14) = x$
 $70 = x$

v) $\frac{3}{4}x - 0.5 = \frac{2}{3}x$

① LCD: 12

$\frac{3x}{4} - \frac{1}{2} = \frac{2x}{3}$
 $12 \left(\frac{3x}{4}\right) - 12 \left(\frac{1}{2}\right) = 12 \left(\frac{2x}{3}\right)$
 $9x - 6 = 8x$
 $-8x + 6 = 8x + 6$
 $x = 6$

vi) $\frac{8}{27} = \frac{2x}{189}$

(cross multiply)
 $8(189) = 27(2x)$
 $\frac{8(189)}{27} = \frac{27(2x)}{27}$
 $56 = 2x$
 $28 = x$

3. Given the steps in solving the following equations, indicate where the mistake is:

$\frac{7x}{3} + 2 = -12$

$\frac{7x}{3} + 2 - 2 = -12 - 2$ Step 1

$\frac{7x}{3} = -10$ Step 2

$\left(\frac{3}{7}\right) \frac{7x}{3} = -10 \left(\frac{3}{7}\right)$ Step 3

$x = \frac{-30}{-70}$ Step 4

$x = \frac{-30}{7}$

$\frac{4x}{5} - 2 = -18 + 4x$

$\frac{4x}{5} - 2 + 2 = -18 + 2 + 4x$ Step 1

$\frac{4x}{5} = -16 + 4x$ Step 2

$\frac{4x}{5} - \frac{4x}{5} = -16 + 4x - \frac{4x}{5}$ Step 3

$0 = -16 + \frac{20x}{5} - \frac{4x}{5}$ Step 4

$-16 = \frac{24x}{5}$ Step 5

$\frac{-80}{24} = x$ Step 6

$\frac{20x}{5} - \frac{4x}{5} = \frac{16x}{5}$