

Homework 2.2

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Solve each equation.

1) $3(n+4) + 8n = 5n - 36$

$$3n + 12 + 8n = 5n - 36$$

$$11n + 12 = 5n - 36$$

$$\begin{array}{r} -5n \quad -5n \\ \hline 6n + 12 = -36 \end{array}$$

$$6n + 12 = -36$$

$$6n + 12 = -36$$

$$\begin{array}{r} -12 \quad -12 \\ \hline 6n = -48 \end{array}$$

$$\frac{6n}{6} = \frac{-48}{6}$$

$$n = -8$$

2) $3m + 21 = 4(m + 4)$

$$3m + 21 = 4m + 16$$

$$\begin{array}{r} -3m \quad -3m \\ \hline 21 = m + 16 \end{array}$$

$$\begin{array}{r} -16 \quad -16 \\ \hline 5 = m \end{array}$$

$$5 = m$$

3) $-6(4 + 2x) - 7x = x - 24$

$$-24 - 12x - 7x = x - 24$$

$$-24 - 19x = x - 24$$

$$\begin{array}{r} +19x \quad +19x \\ \hline -24 = 20x - 24 \end{array}$$

$$-24 = 20x - 24$$

$$\begin{array}{r} +24 \quad +24 \\ \hline 0 = 20x \end{array}$$

$$0 = 20x$$

$$0 = 20x$$

$$\frac{0}{20} = \frac{20x}{20}$$

$$0 = x$$

4) $-5(x - 2) = -(2 - x)$

$$-5x + 10 = -2 + x$$

$$\begin{array}{r} +5x \quad +5x \\ \hline 10 = -2 + 6x \end{array}$$

$$10 = -2 + 6x$$

$$\begin{array}{r} +2 \quad +2 \\ \hline 12 = 6x \end{array}$$

$$\frac{12}{6} = \frac{6x}{6}$$

$$2 = x$$

5) $-8(-4 - 4x) + 8(-7 - 3x) = -3x + 5x$

$$32 + 32x - 56 - 24x = -3x + 5x$$

$$8x - 24 = 2x$$

$$\begin{array}{r} -8x \quad -8x \\ \hline -24 = -6x \end{array}$$

$$-24 = -6x$$

$$-24 = -6x$$

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

$$4 = x$$

6) $4(6r - 1) = -4(4 - 7r)$

$$24r - 4 = -16 + 28r$$

$$\begin{array}{r} -24r \quad -24r \\ \hline -4 = -16 + 4r \end{array}$$

$$-4 = -16 + 4r$$

$$\begin{array}{r} +16 \quad +16 \\ \hline 12 = 4r \end{array}$$

$$\frac{12}{4} = \frac{4r}{4}$$

$$3 = r$$

Solve each proportion.

7) $\frac{-5x - 23}{2} = \frac{5 - x}{1} (2)$

$$-5x - 23 = 10 - 2x$$

$$\begin{array}{r} +5x \quad +5x \\ \hline -23 = 10 + 3x \end{array}$$

$$-23 = 10 + 3x$$

$$\begin{array}{r} -10 \quad -10 \\ \hline -33 = 3x \end{array}$$

$$-33 = 3x$$

$$-33 = 3x$$

$$\frac{-33}{3} = \frac{3x}{3}$$

$$-11 = x$$

9) $\frac{b+2}{1} = \frac{11-b}{4} (4)$

$$4(b+2) = 11-b$$

$$4b + 8 = 11 - b$$

$$\begin{array}{r} +b \quad +b \\ \hline 5b + 8 = 11 \end{array}$$

$$5b + 8 = 11$$

$$\begin{array}{r} -8 \quad -8 \\ \hline 5b = 3 \end{array}$$

$$\frac{5b}{5} = \frac{3}{5}$$

$$b = \frac{3}{5}$$

8) $\frac{9r - 49}{7} = \frac{r - 5}{1} (7)$

$$9r - 49 = 7(r - 5)$$

$$9r - 49 = 7r - 35$$

$$\begin{array}{r} -7r \quad -7r \\ \hline 2r - 49 = -35 \end{array}$$

$$2r - 49 = -35$$

$$\begin{array}{r} +49 \quad +49 \\ \hline 2r = 14 \end{array}$$

$$\frac{2r}{2} = \frac{14}{2}$$

$$r = 7$$

Solve each equation.

10) $4.1 - 0.2(-5.5k - 2.3) = 2.2k + 9.73$

$$4.1 + 1.1k + 0.46 = 2.2k + 9.73$$

$$1.1k + 4.56 = 2.2k + 9.73$$

$$\begin{array}{r} -1.1k \\ \hline 4.56 = 1.1k + 9.73 \end{array}$$

$$\begin{array}{r} -9.73 \\ \hline -5.17 = 1.1k \end{array}$$

$$-5.17 = 1.1k$$

11) $4.59 - 4.9v = -5.5(-3.6 + 1.6v)$

$$4.59 - 4.9v = 19.8 - 8.8v$$

$$\begin{array}{r} +8.8v \\ \hline 4.59 + 3.9v = 19.8 \end{array}$$

$$\begin{array}{r} -4.59 \\ \hline 3.9v = 15.21 \end{array}$$

$$\begin{array}{r} -4.59 \\ \hline 3.9v = 15.21 \end{array}$$

$$3.9v = 15.21$$

$$\begin{array}{r} 3.9 \quad 3.9 \\ \hline v = 3.9 \end{array}$$

$$v = 3.9$$

12) $5.9(1 - 0.3a) - 2.8 = -12.214 - 5.8a$

$$5.9 - 1.77a - 2.8 = -12.214 - 5.8a$$

$$-1.77a + 3.1 = -12.214 - 5.8a$$

$$\begin{array}{r} +5.8a \\ \hline 4.03a + 3.1 = -12.214 \end{array}$$

$$4.03a + 3.1 = -12.214$$

$$\begin{array}{r} 4.03a + 3.1 = -12.214 \\ -3.1 \quad -3.1 \\ \hline 4.03a = -15.314 \end{array}$$

$$\begin{array}{r} 4.03a = -15.314 \\ 4.03 \quad 4.03 \\ \hline a = -3.8 \end{array}$$

$$4.03a = -15.314$$

$$a = -3.8$$

Find the mistake that was made when solving each equation. Explain why the work shown is incorrect. Solve each equation correctly.

13) $-92 = x - 4(5x + 4)$

$$-92 = x - 20x - 16$$

$$-92 = 21x - 16$$

$$-76 = 21x$$

$$-3.619$$

$$-92 = x - 4(5x + 4)$$

$$-92 = x - 20x - 16$$

$$-92 = -19x - 16$$

$$\begin{array}{r} +16 \quad +16 \\ \hline -76 = -19x \end{array}$$

$$\begin{array}{r} -76 = -19x \\ -19 \quad -19 \\ \hline 4 = x \end{array}$$

$$-76 = -19x$$

$$-19 \quad -19$$

$$4 = x$$

Add x and -20x

14) $-114 = 6(4n - 3)$

$$-114 = 10n - 9$$

$$-105n = 10n$$

$$-10.5 = n$$

$$-114 = 6(4n - 3)$$

$$-114 = 24n - 18$$

$$\begin{array}{r} +18 \quad +18 \\ \hline -96 = 24n \end{array}$$

$$\begin{array}{r} -96 = 24n \\ 24 \quad 24 \\ \hline -4 = n \end{array}$$

$$-96 = 24n$$

$$24 \quad 24$$

$$-4 = n$$

6 should be multiplied by 4n and -3.

15) $69 = -2(6x - 1) - 5$

$$69 = -12x + 2 - 5$$

$$69 = -12x - 3$$

$$72 = -12x$$

$$6 = x$$

$$69 = -2(6x - 1) - 5$$

$$69 = -12x + 2 - 5$$

$$69 = -12x - 3$$

$$\begin{array}{r} +3 \quad +3 \\ \hline 72 = -12x \end{array}$$

$$\begin{array}{r} 72 = -12x \\ -12 \quad -12 \\ \hline -6 = x \end{array}$$

$$72 = -12x$$

$$-12 \quad -12$$

$$-6 = x$$

$$72 \div -12$$

should be

$$-6$$