

Name _____

Answers

Date _____

Period _____

1.3 Solving Equations with Variables on Both Sides

1) $4x = 3x + 5$

$-3x \quad -3x$

$$\boxed{x = 5}$$

2) $8r + 1 = 9r$

$-8r \quad -8r$

$$\boxed{1 = r}$$

3) $15 - 2x = -7x$

$+2x \quad +2x$

$$\frac{15}{-5} = \frac{-5x}{-5}$$

$$\boxed{-3 = x}$$

4) $3s = s - 2$

$-s \quad -s$

$$\frac{2s}{2} = \frac{-2}{2}$$

$$\boxed{s = -1}$$

5) $8k = k$

$-k \quad -k$

$$\frac{7k}{7} = \frac{0}{7}$$

$$\boxed{k = 0}$$

6) $5n - 9 = n + 31$

$-n \quad -n$

$4n - 9 = 31$

$+9 \quad +9$

$$\frac{4n}{4} = \frac{40}{4}$$

$$\boxed{n = 10}$$

7) $9x + 9 = 9x - 12$

$-9x \quad -9x$

$9 = -12$

$$\boxed{\text{No solution}}$$

8) $2(x - 6) = 3x$

$2x - 12 = 3x$

$-2x \quad -2x$

$$\boxed{-12 = x}$$

$$9) \frac{1}{2}x + 5 = x$$

$$-\frac{1}{2}x \quad -\frac{1}{2}x$$

$$2 \cdot 5 = \frac{1}{2}x \cdot 2$$

$$\boxed{10 = x}$$

$$10) 1 + 6k = 6k + 1$$

$$-6k \quad -6k$$

$$1 = 1$$

Infinitely Many Solutions

$$11) r + 11 + 8r = 29 + 3r$$

$$9r + 11 = 29 + 3r$$

$$-3r \quad -3r$$

$$6r + 11 = 29$$

$$-11 \quad -11$$

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

$$\boxed{r = 3}$$

$$12) \frac{4+y}{5} = y$$

$$4+y = 5y$$

$$-y \quad -y$$

$$4 = 4y$$

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

$$\boxed{1 = y}$$

$$13) 5(2+n) = 3(n+6)$$

$$10 + 5n = 3n + 18$$

$$-3n \quad -3n$$

$$10 + 2n = 18$$

$$-10 \quad -10$$

$$\frac{2n}{2} = \frac{8}{2}$$

$$\boxed{n = 4}$$

$$14) \frac{2}{3}x - 7 = x$$

$$-\frac{2}{3}x \quad -\frac{2}{3}x$$

$$3 \cdot -7 = \frac{1}{3}x \cdot 3$$

$$\boxed{-21 = x}$$

$$15) 3(2+v) - 4v = v + 16$$

$$6 + 3v - 4v = v + 16$$

$$6 - 1v = 1v + 16$$

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

$$6 = 2v + 16$$

$$-16 \quad -16$$

$$\frac{-10}{2} = \frac{2v}{2}$$

$$\boxed{-5 = v}$$

$$16) 6r + 2(2-r) = 4(2r-1)$$

$$6r + 4 - 2r = 8r - 4$$

$$4r + 4 = 8r - 4$$

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

$$4 = 4r - 4$$

$$+4 \quad +4$$

$$\frac{8}{4} = \frac{4r}{4}$$

$$\boxed{2 = r}$$