Name Answers Date Period

# Review - Solving Equations with Variables on Both Sides

**1)** $4x = 3x + 5$

$-3x \quad -3x$

$x = 5$

**2)** $8r + 1 = 9r$

$-8r \quad -8r$

$1 = r$

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

$+7x \quad +7x$

$15 + 5x = 0$

$-15 \quad -15$

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

$x = -3$

**4)** $3s = s - 2$

$-s \quad -s$

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

$s = -1$

**5)** $8k = k$

$-k \quad -k$

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

$k = 0$

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

$-n \quad -n$

$4n - 9 = 31$

$+9 \quad +9$

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

$n = 10$

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

$-9x \quad -9x$

$9 = -12$

No solution

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

$2x - 12 = 3x$

$-2x \quad -2x$

$-12 = x$

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

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

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

$\boxed{10 = x}$

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

$-6k \quad -6k$

$1 = 1$

Infinitely Many Solutions

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

$9r + 11 = 29 + 3r$

$-3r \qquad -3r$

$6r + 11 = 29$

$-11 \quad -11$

$\frac{6r}{6} = \frac{18}{6}$ $\boxed{r = 3}$

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

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

$10 + 5n = 3n + 18$

$-3n \quad -3n$

$10 + 2n = 18$

$-10 \qquad -10$

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

$\boxed{n = 4}$

**14)** $\frac{2}{3}x - 7 = 1x$

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

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

$\boxed{-21 = x}$

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

$6 + 3v - 4v = 1v + 16$

$6 - 1v = 1v + 16$

$+1v \quad +1v$

$6 = 2v + 16$

$-16 \qquad -16$

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

$\boxed{-5 = v}$

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