

Chapter 1 Test

Simplify each expression.

1) $\frac{10x^2 - 10x}{25x^2}$

$\frac{10x(x-1)}{25x^2} = \frac{2(x-1)}{5x}$

2) $\frac{n+4}{3n^2+5n-28}$

$\frac{n+4}{(3n-7)(n+4)} = \frac{1}{3n-7}$

Solve each equation.

3) $-\frac{23}{12} = -\frac{13}{4}m - \frac{5}{2}m$

$-\frac{23}{12} = -\frac{13}{4}m - \frac{10}{4}m$

$-\frac{23}{12} = -\frac{23m}{4}$ $\frac{1}{12} = \frac{m}{4}$
 $m = \frac{4}{12} = \frac{1}{3}$

4) $8(b+1) - 7(b-8) = 5b - 8b$

$8b + 8 - 7b + 56 = 5b - 8b$

$b + 64 = -3b$

$4b = -64$

$b = -16$

5) $|n+6| = 7$

$n+6 = 7$ or $n+6 = -7$

$n = 1$ or $n = -13$

$\{-13, 1\}$

6) $|4-x| = 3$ $|x-4| = 3$

$x-4 = 3$ or $x-4 = -3$

$x = 7$ or $x = 1$

$\{1, 7\}$

7) $8 + |x+5| = 14$

$|x+5| = 6$

$x+5 = 6$ or $x+5 = -6$

$x = 1$ or $x = -11$

$\{-11, 1\}$

8) $-|-n-1| + 9 = -1$

$-|-n-1| = -10$

$|-n-1| = 10$

$-n-1 = 10$ or $-n-1 = -10$

$n = -11$

$n = 9$
 $\{-11, 9\}$

Solve each inequality.

9) $4x + 5 > 8 + 4x$

$5 > 8$ False

\therefore No Solution

10) $-3(5-4k) < -3(-5k+4)$

$5-4k > -5k+4$

$k > -1$

$$11) -\frac{7}{3}v + \frac{4}{3} + 1\frac{1}{2} \geq \frac{17}{6}$$

$$6\left(-\frac{7}{3}v + \frac{4}{3} + \frac{3}{2}\right) \geq 6\left(\frac{17}{6}\right)$$

$$-14v + 8 + 9 \geq 17$$

$$-14v \geq 0$$

$$v \leq 0$$

$$13) |-10 + x| \leq -16$$

Not possible
 \therefore No solution

$$15) \frac{|n|}{2} \geq -4$$

$$|n| \geq -8$$

All real numbers

$$12) |k| < -10$$

Not possible
 \therefore No solution

$$14) |-8x + 2| \leq -22$$

Not possible
 \therefore No solution

$$16) \left|\frac{k}{2}\right| + 10 < 6$$

$$\left|\frac{k}{2}\right| < -4$$

Not possible
 \therefore No solution

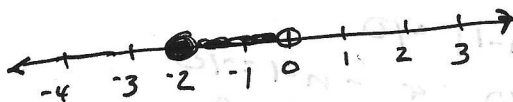
Solve each compound inequality.

(Note: Graphs are not required)

$$17) \frac{x}{3} < 0 \text{ and } -3x \leq 6$$

$$x < 0 \text{ and } x \geq -2$$

$$\text{so } -2 \leq x < 0$$

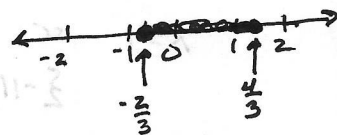


$$18) -\frac{8}{3} \leq n - 2 \leq -\frac{2}{3}$$

$$-\frac{8}{3} + 2 \leq n \leq -\frac{2}{3} + 2$$

$$-\frac{8}{3} + \frac{6}{3} \leq n \leq -\frac{2}{3} + \frac{6}{3}$$

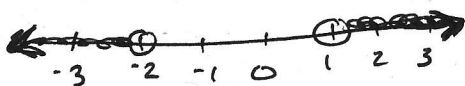
$$-\frac{2}{3} \leq n \leq \frac{4}{3}$$



$$19) v - 3 > -2 \text{ or } \frac{v}{2} < -1$$

$$v - 3 > -2 \quad \frac{v}{2} < -1$$

$$v > 1 \quad \text{or} \quad v < -2$$



$$20) x - \frac{2}{3} < -\frac{4}{3} \text{ or } \frac{2}{5}x > \frac{11}{10}$$

$$x - \frac{2}{3} < -\frac{4}{3} \quad \text{or} \quad \frac{2}{5}x > \frac{11}{10}$$

$$x < -\frac{4}{3} + \frac{2}{3}$$

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

$$x > \frac{11}{10} \cdot \frac{5}{2}$$

$$x > \frac{55}{20}$$

$$x > \frac{11}{4}$$

