Inequations

 Solve each of the following inequations where x can only take values from the set of numbers {-2,-1,0,1,2,3,4,5}.

$$(a) \qquad 6x + 2 \le 3x + 5$$

(b)
$$7x-1 > 3x+3$$

(c)
$$3(2x+1) \ge 5x+8$$

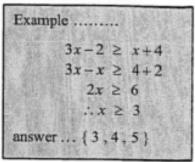
(d)
$$2(6+5x) < 8x+12$$

(e)
$$14-2(3-x) \le 8$$

$$(f)$$
 5+3(2-x) \geq 14-6x

(g)
$$2x - (4 - x) < x + 2$$

(h)
$$3-4(2+x) > 6(2-x)-17$$



Solve each of the following inequations.

(a)
$$3a+2 \le 17-2a$$

(b)
$$7(2x+3) > 8x+27$$

(c)
$$2(5p-12) \ge 7p-18$$

(d)
$$40+3k < 28-k$$

(e)
$$1-5(2-m) \le 2(m+7)$$

(f)
$$3(2y-4)-1 > 4(4-y)$$

(g)
$$2(3-4h) < 12-15h$$

(h)
$$2-3(2-x) > 2(1-x)-5$$

3. Solve each of the following inequations.

(a)
$$2a+18 \le 12+4a$$

(b)
$$14-3x > x+6$$

(c)
$$3(p-2) \ge 5p-10$$

(d)
$$16-3k < 20-k$$

(e)
$$7(2-d) \le 2(d-12)$$

(f)
$$2(2y-1)-8>10(1+y)$$

$$(g)$$
 $4(3-4h) < 12+h$

(h)
$$3(2-y) > 2(1+3y)-7$$

(i)
$$w(w-3) > 5(w+2) + w^2$$
 (j)

$$4d(1+d) < 2d(2d+3) - 20$$

- I think of a <u>whole</u> number, treble it and subtract 3. The answer must be less than or equal to 12.
 Form an inequation and solve it to find the possible starting whole numbers.
- I subtract a whole number from 8 and double the answer. The result must be greater than 10.
 Form an inequation and solve it to find the possible starting whole numbers.
- Fred and Jane are brother and sister. Fred is 3 years older than twice Jane's age.
 The sum of their ages is less than 36 years.

Taking Jane's age to be x years form an inequation. What can you say about Jane's age?

Inequations

1. (a) {-2, -1, 0, 1}

(c) {5}

(e) {-2, -1, 0}

(g) {-2, -1, 0, 1, 2}

2. (a) $a \le 3$

(c) p ≥ 2

(e) $m \le \frac{23}{3} (7\frac{2}{3})$

(g) $h < \frac{6}{7}$

3. (a) $a \ge 3$

(c) p ≤ 2

(e) $d \ge \frac{38}{9} (4\frac{2}{9})$

(g) h > 0

(i) $w < \frac{5}{4} - (-1\frac{1}{4})$

4. {0, 1, 2, 3, 4, 5}

5. {0,1,2}

Jane must be younger than 11 years.

(b) {2, 3, 4, 5}

(d) {-2, -1}

(f) {1, 2, 3, 4, 5}

(h) {1, 2, 3, 4, 5}

(b) x > 1

(d) k < -3

(f) $y > -\frac{29}{10} \left(-2\frac{9}{10}\right)$

(h) $x > \frac{1}{5}$

(b) x < 2

(d) k > -2

(f) $y < -\frac{10}{3}(-3\frac{1}{3})$

(h) $y < \frac{11}{9} (1\frac{2}{9})$

(j) d > 10