Name _____

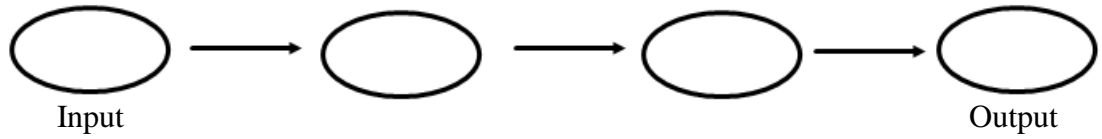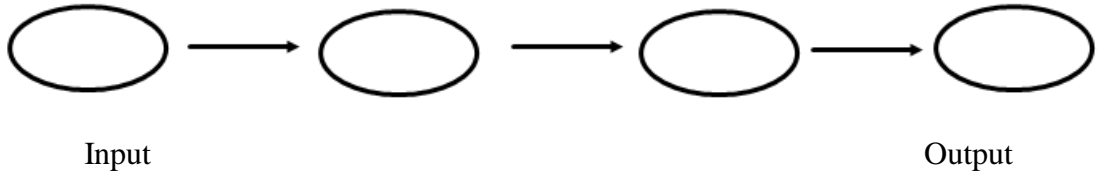   **Period**_____

Use backtracking to find the solution of each equation.
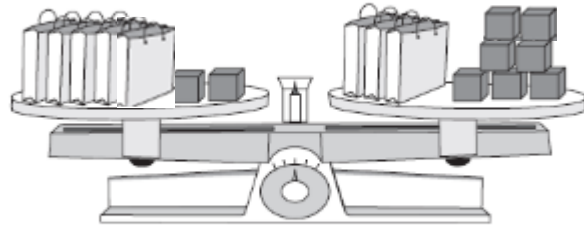
1.) $4(3x - 16) = 32$

Input   Output

2.) ___ $= 12$

Input   Output

3.) Use guess-check-and-improve to solve $3b + 4 = 4b - 2$.

Guess	3b + 4	4b - 2

4.) Consider the balance puzzle

   a. Write an equation to fit the puzzle. Let x represent the number of blocks in each bag.

   b. Use the drawing to find the value of x.

Solve each equation choosing one of these methods: *backtracking, guess-check-and-improve,* or *doing the same thing to both sides.*

5.) $5a - 12 = a + 8$

6.) $5x + 3 = 8x - 18$

Solution:_____

Solution:_____

7.) $5t - 3.5 = 4.9 + 2t$

8.) $7m = 2(m + 3)$

Solution:_____

Solution:_____

9.) Five more than three times a number is sixteen less than twice the number. Write and solve an equation to find the number.

Equation:_____

Solution:_____

10.) A man is 25 years older than his son. If you double the sum of their ages, you would get 178.

   a. Write and solve an equation to find how old the boy is.

Equation:_____

Solution:_____

   b. What the man's age?

man:_____

11.) Candice had 4 bags of marbles. The second bag has 2 more than the first. The third has twice as many as the first and the fourth bag contains six times as many as the first. If she has a total of 62 marbles, how many marbles are in each bag.

1st bag   + 2nd bag   + 3rd bag   + 4th bag   =   Total

Equation:_____

1st:_____ 2nd :_____ 3rd:_____ 4th:_____

Simplify each expression as much as possible

12.) $x + 7(x - 4)$

13.) $12 - 2x + 8x - 5$

_____

_____

14. Which equation has the same solution as $8x - 10 = 3(4x - 6)$? **Circle one:**

a. $4(x - 3) = 7x - 9$

c. $5(2x - 3) = 8x - 11$

b. $4x + 2 = 9x - 10$

d. $5x + 2 = 4(x + 3)$

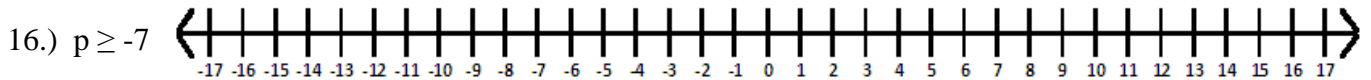15.) Which inequality has the solution of $x < -6$?

Circle one:

a. $-2x > 12$
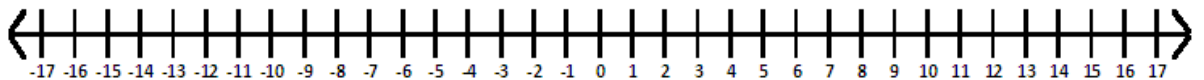
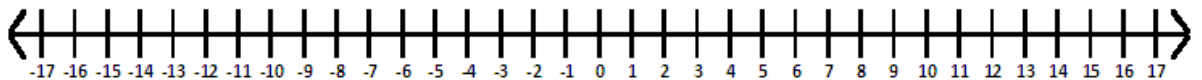c. $3x + 2 > 2x - 8$

b. $-2x > -12$

d. $x < 3x + 12$

Graph.

16.) $p \geq -7$

```
-17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
```

Solve and graph.

17.) $-36 < 3w$ Solution:_____

```
-17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
```

18.) $12 \leq 3c - 6$ Solution:_____

```
-17 -16 -15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
```

Write each inequality.

25.)_____

$$x \le -3$$

26.) _____

$$x > 3$$