

**DIRECTIONS:** No calculators may be used. Be sure to *show ALL of your work*. Depending on the problem, you may receive **NO CREDIT** if no work is shown even if the answer is correct. Don't take that chance. If your answer is a fraction, reduce it to lowest terms. If there is a blank, write your answer in the blank, otherwise **circle your answer**. **Keep this test** to study from for the final exam. You may use scratch paper, but if you do you must copy all work over on to this test paper. Scratch paper will not be graded.

**SIMPLIFY** each expression as far as possible.

1.  $12 - 3(5 - (2 - 3)^4)$

2.  $-7^2$

3.  $3(x - 2) - (5x - 6)$

**LITERAL EQUATIONS:** Solve for the specified variable.

4.  $P = 2L + 2W$  for  $W$

5.  $C = \frac{5}{9}(F - 32)$  for  $F$

**REWRITE** each of the following expressions using the distributive property.

6.  $2x + 14y$

7.  $-3(2x - 1)$

**SOLVE** each equation for  $x$ . If your answer is a fraction, reduce it to lowest terms. If an equation has no solution or has infinitely many solutions, state that as your answer.

8.  $\frac{1}{2}\left(x + \frac{3}{4}\right) - \frac{1}{3} = \frac{2}{3}x$

9.  $0.08x + 0.06(x + 9) = 1.24$

10.  $4x + 2(3 - 2x) = 6$

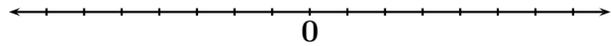
11.  $\frac{1}{2}x + \frac{1}{3}x = \frac{1}{6}x$

12.  $3x - 4(2 - x) = 3(x - 2) - 4$

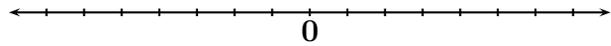
13.  $2(x - 1) + 3 = 3(x + 2) - x$

**SOLVE** each inequality; represent your solution on a number-line, in interval form, and using set-builder notation.

14.  $5 - 4x \leq -3$



15.  $7x + 5 > 12x + 30$



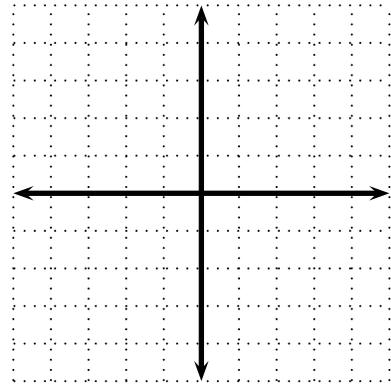
Find the all intercepts for each equation below.

16.  $y = \frac{1}{2}x + 6$

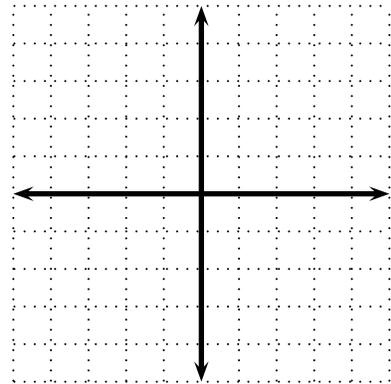
17.  $y + 2 = x + 2$

Graph the line represented by the equation.

18.  $2y = 3x - 1$

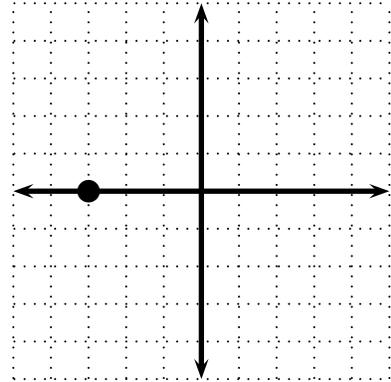


19.  $x = 4$

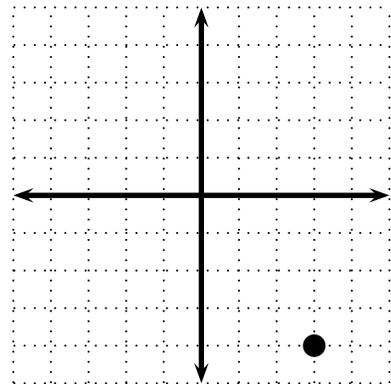


**Write the ordered pair for each point.**

20. The point on the graph at right is (      ,      )



21. The point on the graph at right is (      ,      )



**APPLICATIONS - as with all problems on this test, show ALL of your work, and be sure you have answered the question being asked. No work = no credit.**

20. The supplement of an angle measures  $25^\circ$  more than two times the complement. Find the measure of the angle.

21. If the first and third of three consecutive even integers are added, the result is 22 less than three times the second integer. Find the integers.

22. Rick's Automotive charges \$50 plus \$15 for each (15-minute) unit of time when making a road call. Twin City Repair charges \$70 plus \$10 for each unit of time. Under what circumstances would it be more economical for a motorist to call Rick's?

23. The world's oldest bride was 19 years older than her groom. Together their ages totaled 185 years. How old were the bride and the groom?

24. Twice the sum of four and three times a number is thirty-four. What is the number?

25. Use the commutative property of multiplication to rewrite  $2(3 + 4)$ .

26. A shopkeeper purchased an item that he sold retail for \$28. If this was a 40% mark-up over wholesale, what price did the shopkeeper pay for the item?

27. Two angles are complementary. If the measure of one of these angles is  $22^\circ$  less than three times the other, what are the measures of the angles?

28. If the larger of two consecutive even integers is added to twice the smaller, the sum is 80. What are the integers?

**DIVISION AND ZERO - Match each description to the expression it describes**

\_\_\_\_\_  $\frac{5}{0}$

A. zero

\_\_\_\_\_  $\frac{0}{5}$

B. undefined

\_\_\_\_\_  $\frac{0}{0}$

C. indeterminate

<b>SLOPE</b>
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29. Find the slope of a line going through points in each situation below:

A)  $(5, 2)$  and  $(8, 7)$

B)  $(-3, -7)$  and  $(-2, 4)$

C)  $(-2, 4)$  and  $(-2, 6)$

D)  $(1, 7)$  and  $(-5, 7)$

30. The slope of a vertical line is: \_\_\_\_\_