

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**. Once this test is returned **keep it** to study from for the final exam. You may use scratch paper that I provide, but if you do **you must copy all work over on to this test paper**. Scratch paper will NOT be graded. Each problem is worth 4 points, and your grade will be given as a percentage.

SIMPLIFY each expression as far as possible.

1. -4^2

2. $30 - 12 \div 3 \times (2 + 1)^2$

3. $\frac{1}{2} + \frac{4}{5} - \frac{3}{10}$

4. $(4y - 2) - (-5y + 6)$

LITERAL EQUATIONS: Solve for the specified variable.

5. $D = rt$ for t

6. $3x + 2y = 6$ for y

SOLVE each equation for x . If your answer is a fraction, reduce it to lowest terms. If an equation has no solution (“contradiction”) or has infinitely many solutions (“identity”), state that as your answer.

7. $2 + 3x + 4 = x + 6 + 2x$

8. $7 - 3x = 5x - 9$

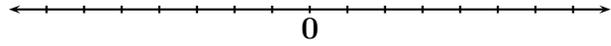
9. $4(8 - 3x) = 32 - 8(x + 2)$

10. $12 + 0.4x = 0.1(60 + x)$

11. $\frac{3}{5}x - \frac{1}{10}x = x - \frac{5}{2}$

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

12. $7 - 4x \geq 19$



Interval Notation:

Set-builder Notation:

PROPERTIES - answer each question based on what you know of mathematical properties.

13. Rewrite $3(y + 2)$ using the *distributive property*.

Answer: _____

14. Rewrite $3(y + 2)$ using the *commutative property of addition*.

Answer: _____

15. Rewrite $12x - 16y + 4$ using the *distributive property*.

Answer: _____

(Hint: Another way to write the directions for problem 15 would be to write “factor.”)

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.** Be sure to use correct units on your answer where appropriate.

16. Twelve less than three times a number is equal to forty-eight. Find the number.

17. A student has earned 55%, 75% and 95% on the first three tests of the semester. What percentage must he earn on his fourth test so that his average on tests is **at least** a B? (Hint: To get a B you must have at least 80%.)

18. There is a 40% off sale at REI. What is the sale price of a traveler's rain coat that normally sells for \$135?

19. Find two consecutive even integers such that the smaller added to three times the larger gives a sum of forty-six.

20. A rectangle has a perimeter of 60 feet. If the length is 7 feet more than the width, what is the length of this rectangle?