

Study Guide for Ch 3-5 Test -- Simplify your answers, and show work on the test

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Formulas .  $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$        $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

$a^2 - b^2 = (a - b)(a + b)$        $m = \frac{y_2 - y_1}{x_2 - x_1}$        $y = mx + b$

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1. Graph the following equations on a coordinate plane.

A.  $5x - 2y = 10$

B.  $y = -\frac{3}{5}x + 4$

C.  $y = -4$

D.  $x = 2$

2. Find the slope-intercept form of a line that contains the points ( 3, -1) and (-4, -2).

3. Find the slope-intercept form of the equation of the line parallel to the line  $y = 2x - 5$  and thru the point ( 2, -6).

4. Find the slope-intercept form of a line through (3, 7) and perpendicular to  $y = -\frac{4}{5}x + 8$ .

5. Graph the inequality  $4x - 3y > 12$ .

6. Solve each system of equations using any method. **Give your final answer as an ordered pair.**

A.  $\begin{cases} x + y = 5 \\ x - 2y = -4 \end{cases}$

B.  $\begin{cases} 2x - 4y = 4 \\ x - 2y = 2 \end{cases}$

C.  $\begin{cases} 3x - 2y = 7 \\ 6x - 4y = 3 \end{cases}$

7. Let  $f(x) = 2x - 7$ ,  $g(x) = -x^2 + 4$ , and  $h(x) = 5x^2 + 4x - 3$ . Find each of the following.

A.  $g(-2)$

B.  $f(5) - h(-1)$

8. Simplify each of the following. Answers should contain **only positive exponents**.

A.  $(2x^3y^7)^6$       B.  $\left(\frac{3x}{5ay^2}\right)^3$       C.  $(2a^2b^4)^{-3}$       D.  $(-5)^2$       E.  $(-5)^3$       F.  $-3^2$

9. Perform the indicated operation.

A.  $(x^2 - 3) + (3x + 5) - (5x^2 - 7x)$

B.  $(5x - 2)(4x + 5)$

C.  $(2x - 5)^2$

D.  $2x(5x - 2)(5x + 2)$

10. Factor completely.

A.  $2x^2 - 14x + 20$       B.  $7c^4d^7 - 28c^7d^2$       C.  $27x^3 - y^3$       D.  $12x^2 - 30xy - 6xy + 15y^2$

11. Solve each equation. Show all solutions

A.  $5x^2 = 14x + 3$

B.  $x^2 - 7x + 12 = 0$

C.  $3y(y - 2) = -3$

12. Write each of the following in scientific notation.

A. 0.000 000 038

B. 597,000

13. Find each, giving the answer in scientific notation.

A.  $(5.366 \times 10^{13})(2.894 \times 10^{-7})$

B.  $\frac{3.12 \times 10^{12}}{5.896 \times 10^{-5}}$

14. For each of the following, is it a polynomial? If it is, give the degree, the leading coefficient, and whether it is a monomial, binomial, trinomial, or none of the above.

A.  $7x^5 - 6x + 3$

B.  $3\sqrt{3x} + 3x - 6$

C.  $2x - 5$

D.  $\frac{2}{3}$

E.  $7c^4d^7 - 28c^7d^2 + 3x + 72$

15. Word Problems ( section 5: Pg 210 # 91, Pg 360 #135)  
(section 70: Pg 187 # 91, Pg 324 # 135)