Pre-Calculus/Trig 3
Prerequisite Handout

Name: _____
Date: _____

PRE-CALCULUS/TRIGONOMETRY 3 PREREQUISITE HANDOUT

PART 1: Combining Like Terms

1.) $(2x^2 + 1) + (3x^2 + 6x - 2)$

2.) $(3xy + 6x) - (3y + 6xy)$

3.) $(2x^2y - 6y) - (4x^2 + 2y)$

4.) $3xy + 4x - 3y + 6xy - 7x$

PART 2: Solving Linear Equations

5.) $-35(14 - 2m) = -5(8 + m)$

6.) $2x + 2(x + 4) = 1 + 3(x + 2)$

7.) $\frac{x}{4} - x = \frac{x}{3} + \frac{1}{2}$

8.) $\frac{9x-3}{2} = \frac{3x-6}{9} - \frac{13}{6}$

PART 3: Distributing and the F.O.I.L Method

9.) $(x^2 + 2)(x - 3)$

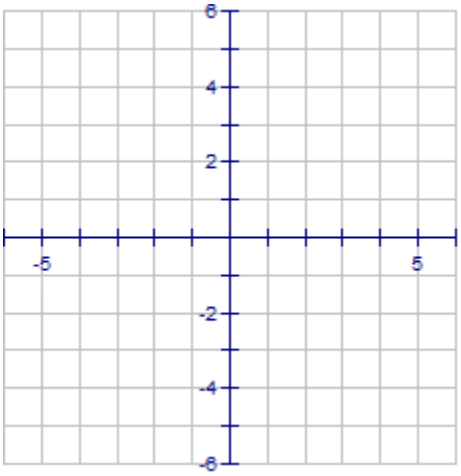
10.) $(2x + 6)(3x + 4y + 6)$

11.) $x(x + 2)(x^2 + 1)$

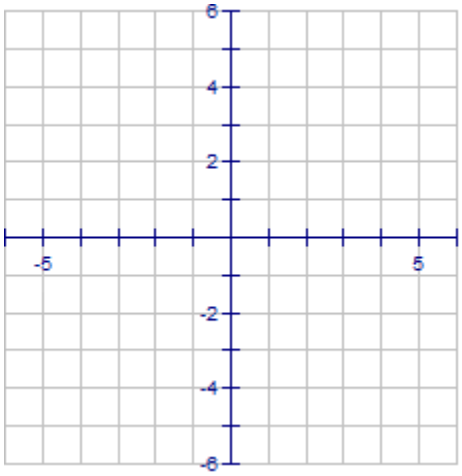
12.) $(x^2y - 3y)(2xy + 3y)$

PART 4: Graphing Linear Equations

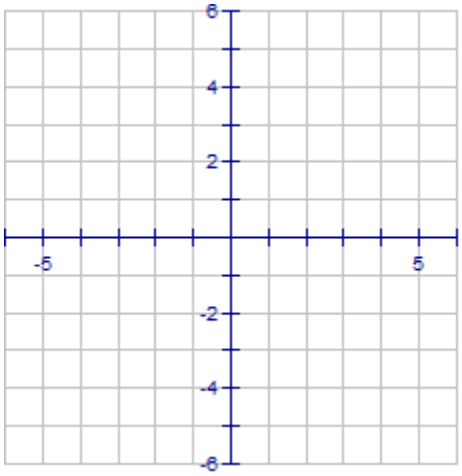
13.) $y = \frac{1}{2}x - 4$



14.) $3x - 3y = 18$

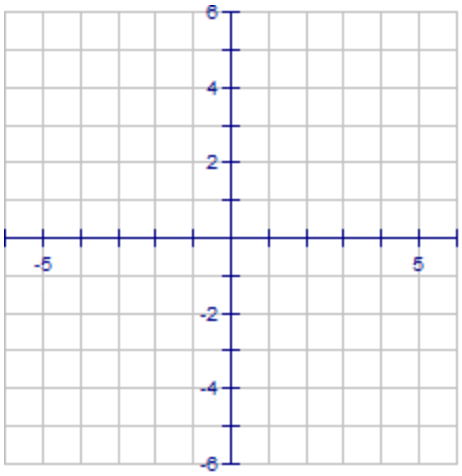


15.) $3x + 5y = 10$



PART 5: Piecewise Functions

$$f(x) = \begin{cases} x + 1, & x < -2 \\ 2, & -2 \le x < 3 \\ -2x + 4, & x \ge 3 \end{cases}$$



16.) $f(4) =$ _____

17.) $f(-3) =$ _____

18.) $f(1) =$ _____

PART 6: Writing Equations of Lines

19.) Write the equation of the line in slope-intercept form which has a slope of $\frac{1}{2}$ and passes through $(6, 4)$.

20.) Write the equation of the line in slope-intercept form which passes through $(6, 1)$ and $(8, -4)$.

21.) Write the equation of the line in slope-intercept form that passes through $(-2, 0)$ and is perpendicular to the line whose equation is $y = 3x + 7$.

PART 7: Exponent Properties

22.) $\left(\frac{a^3b^{-1}}{b^2}\right)^2$

23.) $\left(\sqrt[5]{x}\right)^3$

24.) $\frac{x^5y^0z^3}{xyz^5}$

25.) $3^4 \cdot 3^4 \cdot 3^3$

26.) $(2^{-1})^{-3}$

27.) $\frac{vu^3}{(uv^2)^2 \cdot 2u^3v^2}$

PART 8: Simplifying Radicals

28.) $\sqrt{-96}$

29.) $6\sqrt{75}$

30.) $\sqrt{\frac{12}{5}}$

31.) $\frac{6}{3\sqrt{8}}$

32.) $\left(2\sqrt{3}\right)\left(3\sqrt{7}\right)$

33.) $\left(3\sqrt{10}\right)^2$

PART 9: Complex Numbers

34.) $(4-3i)(2+2i)$

35.) $\frac{3+2i}{i}$

36.) $\frac{7-3i}{4+i}$

PART 10: Factoring Techniques

37.) $6x - 12x^2$

38.) $16x^2 - 25$

39.) $x^2 - 14x - 32$

40.) $x^2 - 9x + 20$

41.) $4x^2 - 4x - 3$

42.) $9x^2 - 13x + 4$

43.) $6x^2 - 13x + 6$

44.) $5x^2 - 14x + 8$

45.) $x^3 + 27$

46.) $x^5 - 3x^3 + x^2 - 3$

PART 11: Solving by Factoring

47.) $4x^2 = 16x$

48.) $x^2 - x - 30 = 0$

49.) $92 - 42x = 2x^2$

50.) $3x^2 + 13x = -4$

51.) $\frac{x}{x-3} = \frac{4}{x-4}$

52.) $\frac{x-4}{3} = \frac{x+4}{x+1}$

PART 12: The Quadratic Formula

$$\boldsymbol{x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}}$$

53.) $5x = 3 - 3x^2$

54.) $x^2 - 2x + 9 = 0$

55.) $2x^2 - x = 5$

56.) $x(x - 2) = 4$