Welcome Class of 2029

Name _____ Group_____

Mathematics Packet

IB Summer Camp
Algebra 1 Review Lesson

Simplifying Expression

1. $25 + (7 - 2)^3 \div 5 - |16 - 27|$

2. $\frac{6x^4y^3}{36x^2y^5}$

Solving Equations

1. $8x - 15 = 4x + 12$

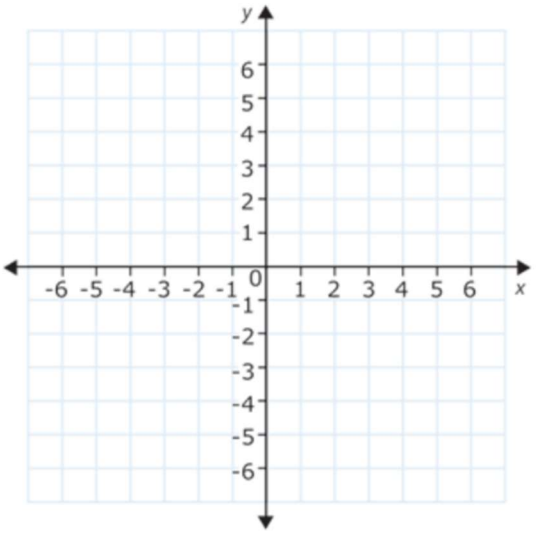
2. $\begin{aligned} 3x - 2y &= 2 \\ 5x - 5y &= 10 \end{aligned}$

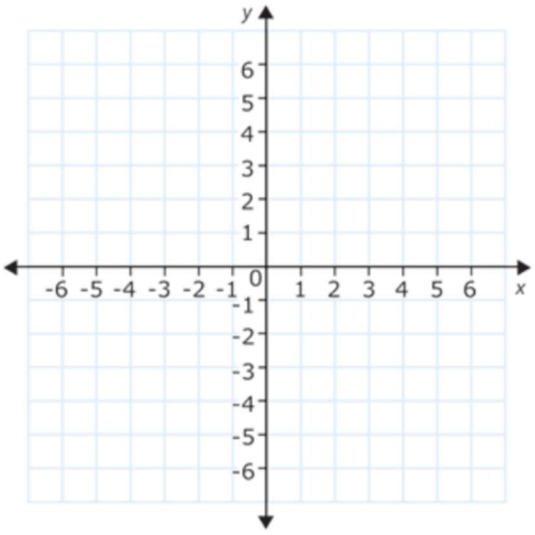
Lines

1. Sketch each graph.

   a. $y = -\frac{1}{3}x + 2$

   b. $3x + 2y = -6$





2. Determine the equation of a line in slope-intercept form that contains the points (3, 5) and (0, -4).

Quadratics

1. Expand $(4x - 1)(x + 8)$

2. Factor $x^2 - 7x + 10$

3. Factor $x^2 + 4x - 12$

4. Factor $3x^2 - 75$

5. Factor $2x^2 - 5x - 3$

6. Factor $3x^2 - 17x + 10$

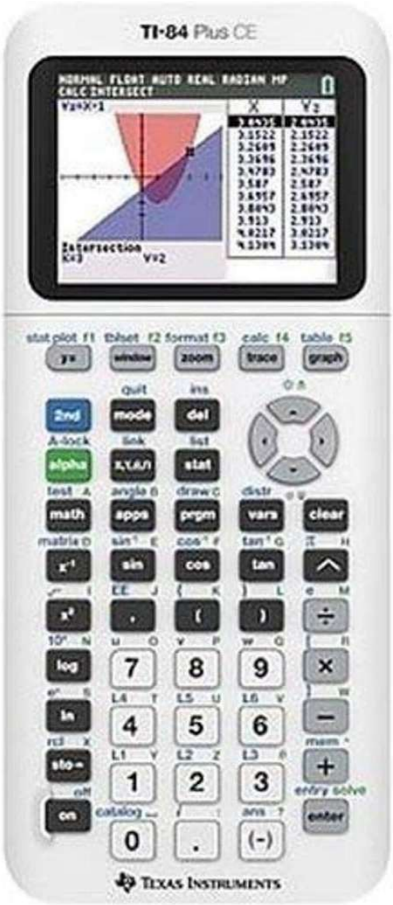
Very Important:

Create a google email account that you would like to use throughout high school and to apply to college with. For example, lastnamefirstintial##@gmail.com Please bring this email with you to camp tomorrow.

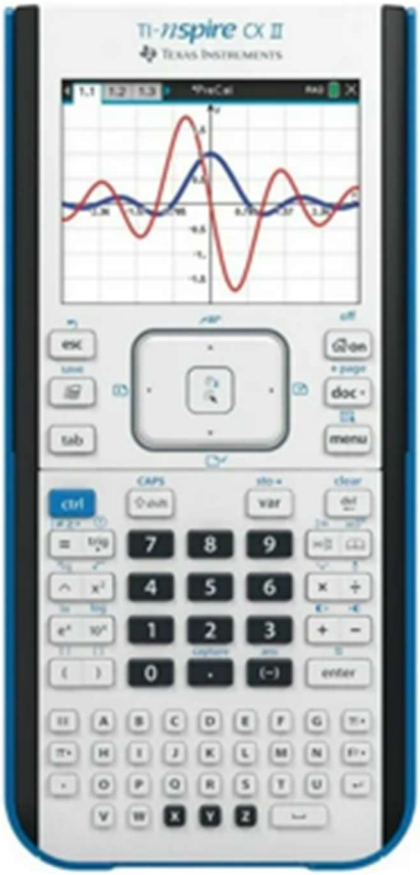
Calculators

Below are the two graphing calculators that are used by instructors here at PHU. These calculators are approved for use on the SAT, ACT, AP exams, and IB exams. We encourage students to purchase one of these calculators. Students also have the opportunity to check out a calculator from the math department at the beginning of the school year if they are unable to purchase one.

TI-84 Plus CE



TI-nspire CX II



IB Incoming Freshmen
Math Summer Review

This tool is designed to help you identify any areas from Algebra I for which you may need support to ensure your success in during your years in IB.

To successfully complete the assignment, work each problem on the worksheets provided, show all work and indicate your answer by underlining it or boxing it. There are optional IXL assignments if you would like the additional support. When you return to school you will turn in the packet and you may have an assessment during the first quarter of the school year *similar* to this assignment, so we encourage you to complete it with fidelity to ensure you are prepared.

This assignment should be completed WITHOUT the use of a calculator.

An answer key has been provided, so you may check your work.

Options for additional support:

- For those students with an IXL account from their previous school, the supporting IXL modules have been listed. These are optional.
  - Algebra 1 A.2: Evaluate numerical expressions involving integers
  - Algebra 1 B.9: Simplify variable expressions involving like terms and the distributive property
  - Algebra 1 C.17: Solve linear equations: mixed review
  - Algebra 1 L.4: Slope-intercept form: graph an equation
  - Algebra 1 L.11: Standard form: graph a line from an equation
  - Algebra 1 L.19: Write an equation for a parallel or perpendicular line
  - Algebra 1 O.14: Solve a system of equations using any method
  - Algebra 1 Z.3: Solve a quadratic equation by factoring

- Khan Academy: Get Ready for Algebra 2 (Module 1 and Module 2)
  https://www.khanacademy.org/math/get-ready-for-algebra-ii

Summer Assignment: PART ONE: EXPRESSIONS

Simplify the following expressions without the use of a calculator. SHOW ALL WORK AND STEPS CLEARLY, EXPRESSING ANY REMAINDERS AS SIMPLIFIED FRACTIONS.

1. $24 - (16 \div 4) + 5(2)^3$

2. $-4^2 - 5^2$

3. $\dfrac{7(-2)-6+9}{-4 \div 4}$

4. $(-16) \div (-4) \cdot |8 - 15|$

5. $\dfrac{(3^2)(y^3)}{(3^{-2})(y^6)}$

6. $\left(\frac{3}{4}x^2 - \frac{2}{3}\right) + \left(-\frac{1}{2}x^2 + x + \frac{5}{6}\right)$

7. $3762 \div 26 =$

8. $3762(26) =$

PART TWO: SOLVING EQUATIONS

Solve the following equations/systems of equations without the use of a calculator. SHOW ALL WORK AND STEPS CLEARLY.

1. $2 - 3(3n - 2) = -10$

2. $-\frac{5}{4}x = \frac{5}{20}$

3. $\frac{27}{18} = \frac{9}{x}$

4. $x^2 - 4x = 5$

5. $y = 2x + 1$
   $y = -3x - 2$

6. $4x - 3y = 12$
   $2x + 3y = -6$

PART THREE: QUADRATIC EXPRESSIONS

1. Completely factor $2x + 4x^2$

2. Completely factor $x^2 - 25$

3. Completely factor $x^2 - 4x - 32$

4. Completely factor $3x^2 + 11x - 4$

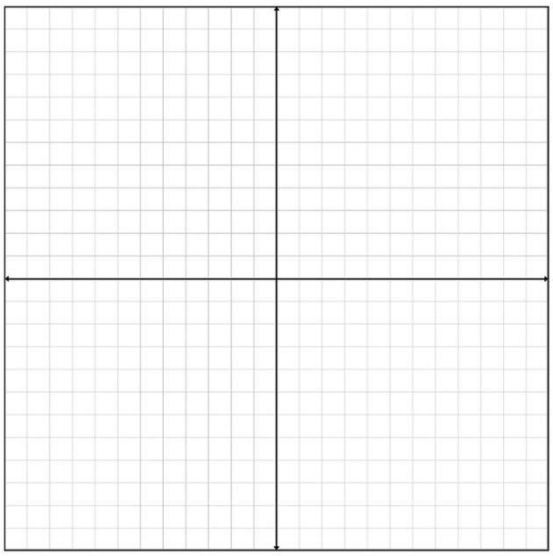
5. Completely expand $(2 + x)^2$

6. Completely expand $(2x + 7)(x - 3)$

PART FOUR: EQUATIONS OF LINES

1. Determine the equation of the line in slope-intercept form $(\boldsymbol{y = mx + b})$ contains the points (-1, 2) and (5, 6)

2. Graph the following equation $5x + 7y = 35$.



3. Use the graph on the left to identify the:

Slope: _____

x-intercept: _____

y-intercept: _____

4. Identify the slope of a line that is perpendicular to the line in Section 4 Problem 1.

5. Find the equation of a line that is parallel to the line in Section 4 Problem 2 passing through the point (-5,1).

Answers

Part 1

1. 60
2. -41
3. 1
4. 28
5. $\frac{81}{y^3}$
6. $\frac{1}{4}x^2 + x + \frac{1}{6}$
7. $144\frac{9}{13}$
8. 97 812

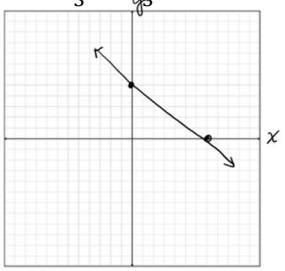
Part 2

1. n = 2
2. $x = -\frac{1}{5}$
3. x = 6
4. x = 5; x = -1
5. $x = -\frac{3}{5}; y = -\frac{1}{5}$
6. $x = 1; y = -\frac{8}{3}$

Part 3

1. 2x(1 + 2x)
2. (x +5)(x – 5)
3. (x – 8)(x + 4)
4. (3x – 1)(x +4)
5. $4 + 4x + x^2$
6. $2x^2 + x - 21$

Part 4

1. $y = \frac{2}{3}x + \frac{8}{3}$
2. 

3. slope: $-\frac{5}{7}$
   x-intercept: 7
   y-intercept: 5
4. $-\frac{3}{2}$
5. $y = -\frac{5}{7}x - \frac{18}{7}$