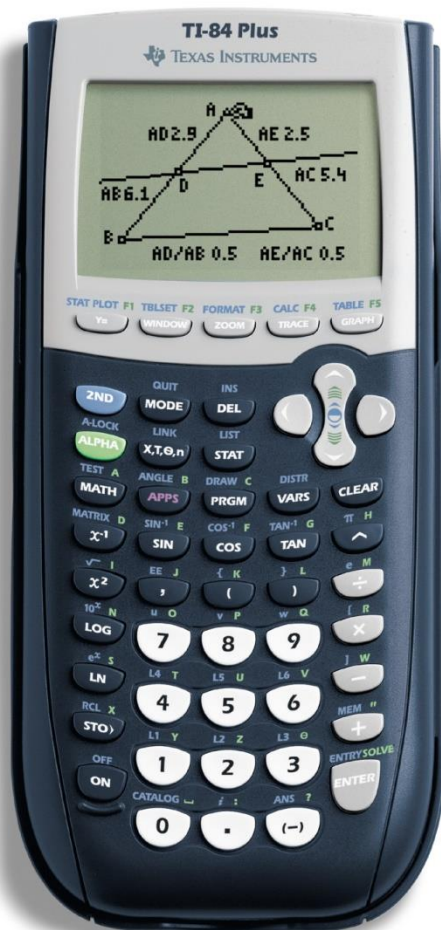


Summer Review for Students

Entering Geometry

1. Area and Perimeter
2. Writing the Equation of a Line
3. Multiplying Polynomials
4. Factoring Polynomials
5. Solving Proportions
6. Solving Systems of Equations
7. Simplifying Radicals



All Geometry students are required to have a TI 84-Plus Graphing Calculator for this course.

The calculator will be used throughout this course, and in future math courses.

Please keep your eyes open for sales and purchase one before school begins.

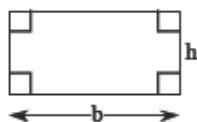
This packet will be collected the 2nd day of class AND you will be given a quiz on the material, sometime within the first two weeks of school.

SHOW ALL WORK

Area and Perimeter of Polygons

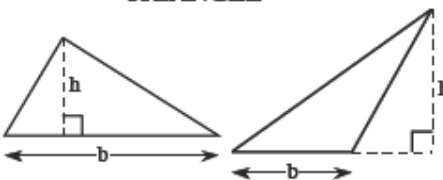
Area is the number of square units in a flat region. The formulas to calculate the areas of several kinds of quadrilaterals or triangles are:

RECTANGLE

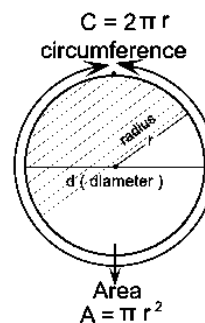


$$A = bh$$

TRIANGLE

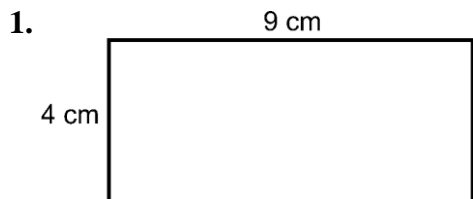


$$A = \frac{1}{2}bh$$



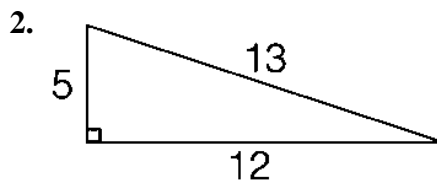
Perimeter is the number of units needed to surround a region. To calculate the perimeter of a quadrilateral or triangle, add the lengths of the sides. The circumference of a circle is the same as the perimeter of a circle.

AREA AND PERIMETER. Find the area and perimeter (when appropriate) of each figure below. **SHOW YOUR WORK.**



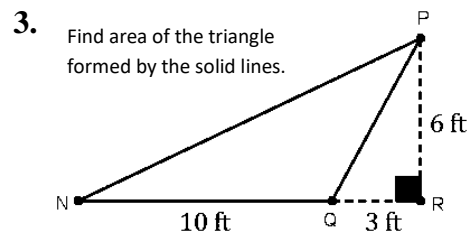
Area = _____

Perimeter = _____

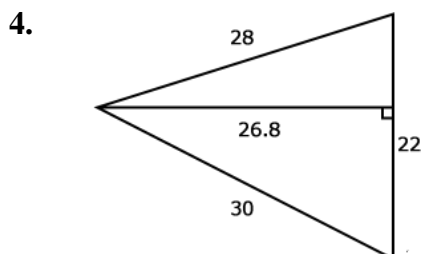


Area = _____

Perimeter = _____

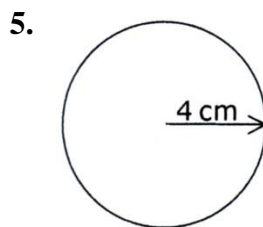


Area = _____



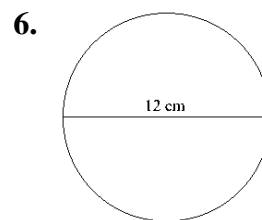
Area = _____

Perimeter = _____



Area = _____

Perimeter = _____

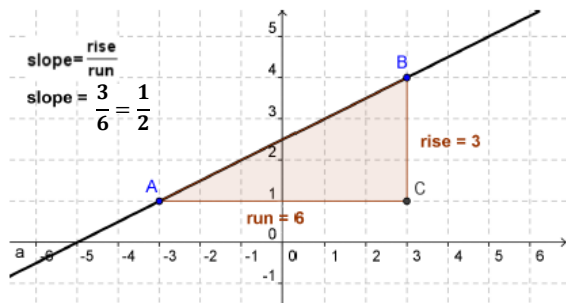


Area = _____

Perimeter = _____

Writing the Equation of a Line

$$\text{SLOPE} = \frac{\Delta y}{\Delta x} = \frac{\text{change in } y}{\text{change in } x}$$



EQUATION OF A LINE $\rightarrow y = mx + b$

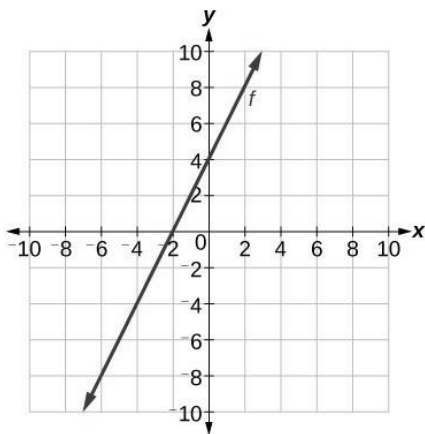
\nearrow slope \nwarrow y-intercept

To find the equation of a line:

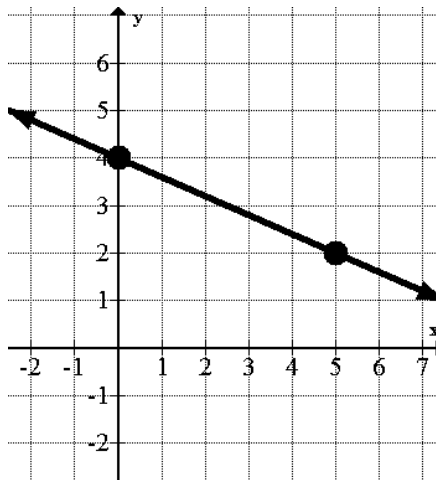
- 1) Find the slope.
- 2) Substitute one point and the slope into the equation of the line and solve for b.
- 3) Rewrite the equation, only substituting in the slope and the y-intercept.

WRITING THE EQUATION OF A LINE. Find the equation of each line described/shown. SHOW YOUR WORK.

7.



8.



9. Write the equation of the line with a slope of $\frac{3}{4}$, passing through the point (8, 5).

EQUATION: _____

EQUATION: _____

EQUATION: _____

10. Write the equation of the line with a slope of -4 , passing through the point $(-3, 2)$.

11. Write the equation of the line passing through the points $(6, 9)$ and $(2, 7)$.

12. Write the equation of the line passing through the points $(3, -1)$ and $(-2, -6)$.

EQUATION: _____

EQUATION: _____

EQUATION: _____

Multiplying Polynomials

In Algebra 1, you learned two methods for multiplying polynomials:

- 1) Distributive Property (used to multiply ONE term times a polynomial)
- 2) Generic Rectangle (used to multiply a polynomial times a polynomial)

MULTIPLYING POLYNOMIALS. Multiply by using the distributive property or by using a generic rectangle. SHOW ALL WORK.

13. $4x(2x - 1)$

14. $(3x + 1)(x - 4)$

15. $(2x - 3)(4x - 5)$

Factoring Polynomials

In Algebra 1, you learned two methods for factoring.

- 1) GCF → Take out the greatest common factor
- 2) Diamond and Rectangle → Expression must look like $ax^2 + bx + c$. Find the outside of the generic rectangle

EXAMPLE: Factor $3x^2 + 9x + 6$.

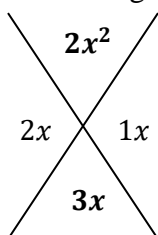
STEP 1: Take out the GCF.

$$3(x^2 + 3x + 2)$$

STEP 2: Factor $x^2 + 3x + 2$ using the diamond and rectangle.

	2
x^2	

STEP 1: Put ax^2 and c terms in opposite corners of the generic rectangle.



STEP 2: Multiply ax^2 and c . . . put them in top of diamond. Put bx in the bottom of the diamond. Find the two missing terms for the diamond.

$2x$	2
x^2	$1x$

STEP 3: Put the terms from the diamond into the generic rectangle. Find the outside numbers.

2	$2x$	2
x	x^2	$1x$
	x	1

STEP 4: Write the factored form.

$$3(x + 2)(x + 1)$$

FACTORING POLYNOMIALS. Factor completely. SHOW ALL WORK.

16. $30x^2 - 18x$

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

18. $8x^2 + 28x + 12$

19. $4x^2 - 25$

Solving Proportions → A proportion is two equal fractions. To solve a proportion, simply cross multiply and the products will be equal. Lastly, isolate the variable.

EXAMPLE: $\frac{4x}{3} = \frac{2}{5}$

$$(2)(3) = (4x)(5)$$
$$\frac{6}{20} = \frac{20x}{20}$$
$$\boxed{\frac{3}{10} = x}$$

SOLVING PROPORTIONS. Solve each equation. SHOW ALL WORK.

20. $\frac{4}{9} = \frac{x}{10}$

21. $\frac{3x}{8} = \frac{6}{5}$

22. $\frac{4}{5} = \frac{8}{2x}$

Solving Systems of Linear Equations → A system of equations is two or more equations with two or more variables. There are four methods for solving systems of equations:

- 1) Graphing
- 2) Equal Values
- 3) Substitution
- 4) Elimination

There are A LOT of YouTube videos on all of these methods. If you need a refresher on one or more of these methods, please find a video or two to watch.

SOLVING SYSTEMS OF LINEAR EQUATIONS. Solve each system of equations below using any method you choose. **SHOW ALL WORK.**

23. $y = 1x + 7$
 $y = 2x + 2$

24. $x + y = 21$
 $4x + 2y = 56$

25. $x = 4y + 3$
 $x + y = 18$

26. $3x + 5y = -4$
 $4x - 3y = -15$

Simplifying Radicals → Simplifying a radical DOES NOT mean to turn it into a decimal.

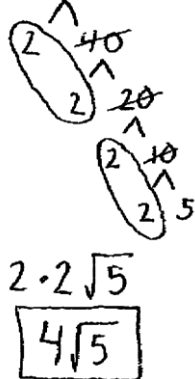
STEP 1: Create a factor tree for the number inside the radical. (Cross out any numbers that you break down).

STEP 2: Circle numbers in PAIRS.

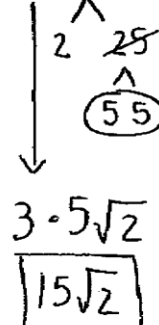
STEP 3: The numbers that you circle go in front of the radical (1 number per circle). The numbers that aren't crossed out or circled, stay inside the radical.

STEP 4: Multiply the outside numbers. Multiply the inside numbers.

EXAMPLE: Simplify $\sqrt{80}$.



EXAMPLE: Simplify $3\sqrt{50}$.



SIMPLIFYING RADICALS. Simplify each radical. SHOW ALL WORK.

27. $\sqrt{20}$

28. $\sqrt{180}$

29. $5\sqrt{40}$

30. $7\sqrt{24}$

SOLUTIONS:

1. $A = 36 \text{ cm}^2$
 $P = 26 \text{ cm}$

2. $A = 30 \text{ u}^2$
 $P = 30 \text{ u}$

3. $A = 30 \text{ ft}^2$

4. $A = 294.8 \text{ u}^2$
 $P = 80 \text{ u}$

5. $A = 16\pi \text{ cm}^2$
 $C = 8\pi \text{ cm}$

6. $A = 36\pi \text{ cm}^2$
 $C = 12\pi \text{ cm}$

7. $y = 2x + 4$

8. $y = -\frac{2}{5}x + 4$

9. $y = \frac{3}{4}x - 1$

10. $y = -4x - 10$

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

12. $y = 1x - 4$

13. $8x^2 - 4x$

14. $3x^2 - 11x - 4$

15. $8x^2 - 22x + 15$

16. $6x(5x - 3)$

17. $(3x + 5)(x + 2)$

18. $4(2x + 1)(x + 3)$

19. $(2x + 5)(2x - 5)$

20. $x = \frac{40}{9}$ or $4.\bar{4}$

21. $x = 3.2$

22. $x = 5$

23. $x = 5$
 $y = 12$

24. $x = 7$
 $y = 14$

25. $x = 15$
 $y = 3$

26. $x = -3$
 $y = 1$

27. $2\sqrt{5}$

28. $6\sqrt{5}$

29. $10\sqrt{10}$

30. $14\sqrt{6}$