Concept: Slope of a Line

Name:

- **You should have completed Graphing – Section 7 Part A and B: Slope of a Line before beginning this handout.**

OFF COMPUTER EXERCISES

1. Find the slopes of each of the following lines:

a) Through the points (7, 5) and (9, 7)

b) Through the points (2, 11) and (4, 5)

c) Through the points (4, 0) and (8, 8)

In each case, place the points on a grid with an x-y axis. ***Draw the line.***

2. Apply your superior knowledge to the following scenario.

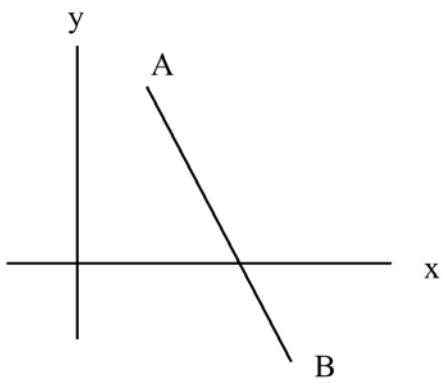
(a) Predict whether the slope of the line below is **positive** or **negative**. _____

(b) Take reasonable values for the coordinates of the points A and B.

_____

(c) Find the slope of the line through A and B

SLOPE =



3. Draw each of the following lines. *(You will need graph paper for this question)*

a) Through (2, 1) with slope $\frac{3}{2}$

b) Through (4, 9) with slope $-\frac{2}{3}$

c) Through (6, 0) with slope 2

d) Through (-1, 4) with slope 1

4. You are given a line through A (-1, -5) and B (5, 4).
   You are also given a second line through C (0,7) and (6,3)

   (a) Find the slopes of the 2 lines.

   (b) Determine if the lines are parallel, perpendicular or neither perpendicular nor parallel.

5. Place 2 points A and B of your own choice on an x-y grid. *(You will need graph paper for this question)*

   (a) Draw another line, which is perpendicular to line AB.

   (b) Find the Coordinates of 2 points C and D on this second line.

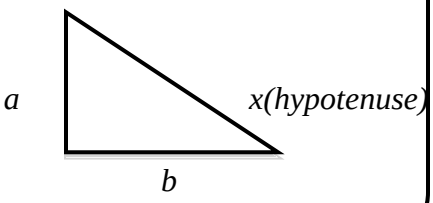
   (c)Verify that AB is perpendicular to CD.

6. Repeat ***question 5*** above with lines that are ***parallel.***

Pythagorean Theorem

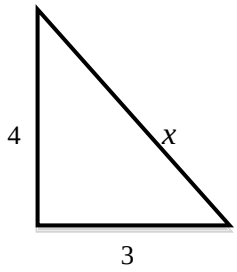
The square on the hypotenuse of a *right angle* triangle is equal to the sum of the squares on the other two sides.

$x^2 = a^2 + b^2$



7. Use the **Pythagorean Theorem** to find an unknown side of a right triangle**.**

To find the length of the hypotenuse: hypotenuse is given:



$x^2 = 4^2 + 3^2$

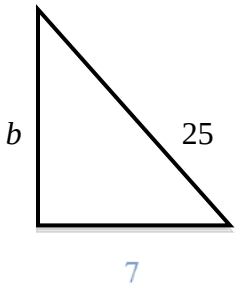
$x^2 = 16 + 9$

$x^2 = 25$

$x = \sqrt{25}$

$x = 5$

To find the length of a side when the



$7^2 + b^2 = 25^2$

$49 + b^2 = 625$

$b^2 = 625 - 49$

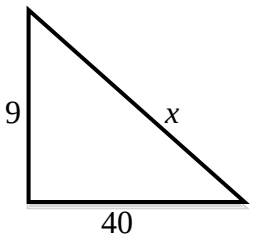
$b^2 = 576$

$b = \sqrt{576}$

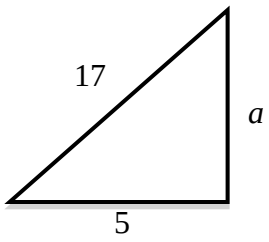
$b = 24$

Find the unknown side of each triangle.

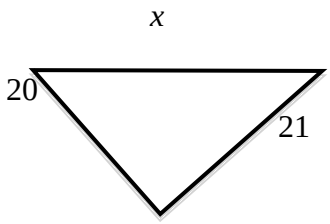
(a)



(b)



(c)



(d)