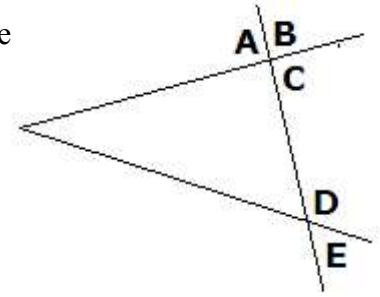


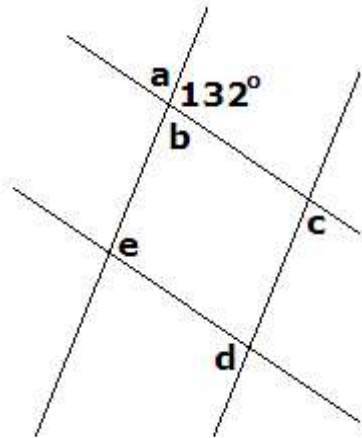
## Geometry Chapter 4 – Competency Examples

Important Note: These examples are meant for the student to assess their knowledge topics from Chapter 4. Students should not infer the level of difficulty of the test questions from these examples.

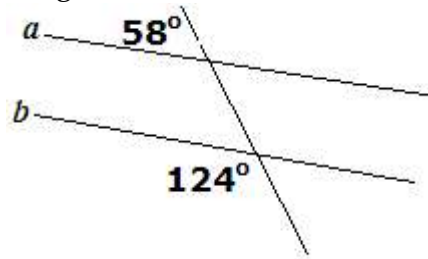
1. In the drawing at the right,  $m\angle C = 72^\circ$ . And  $m\angle C + m\angle D = 142^\circ$ . Find the measures of angles A, B and E.



2. Find the value of each letter in the drawing below. Assume that lines appearing to be parallel actually are.



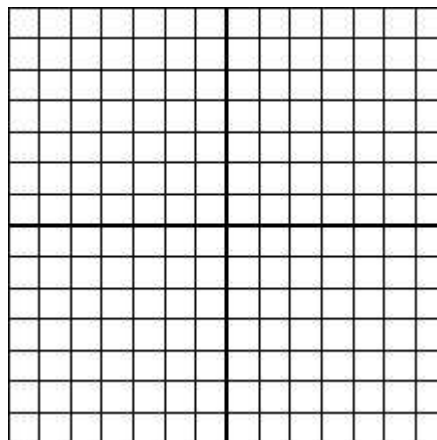
3. Could lines  $a$  and  $b$  be parallel? Explain your reasoning.



4. Find the slope of the line that contains the points  $(-3,5)$  and  $(2,-8)$ .
5. a) Find the midpoint of the segment with endpoints  $(-4,9)$  and  $(8,16)$ .
- b) Points A and B are the endpoints of the segment with midpoint  $(5,11)$ . If point A has coordinates  $(1,6)$ , find the coordinates of point B.
6. Line A passes through the points  $X = (2,7)$  and  $Y = (5,11)$ . Line B passes through X and point  $Z = (6,4)$ . Do lines A and B form a 90 degree angle? Explain.
7. The points  $(4,9)$ ,  $(7,16)$  and  $(16,t)$  are collinear. Find the value of  $t$ .

8. The following points are graphed: (6,7), (12,15), (16,12) and (10,4). Do these points form the vertices of a trapezoid, parallelogram, rectangle or a general quadrilateral?

9. Graph and label the following lines:  $x = -6$ ,  $y = 5$ ,  $y = -\frac{2}{3}x + 4$  and  $y = 1\frac{1}{2}x - 3$

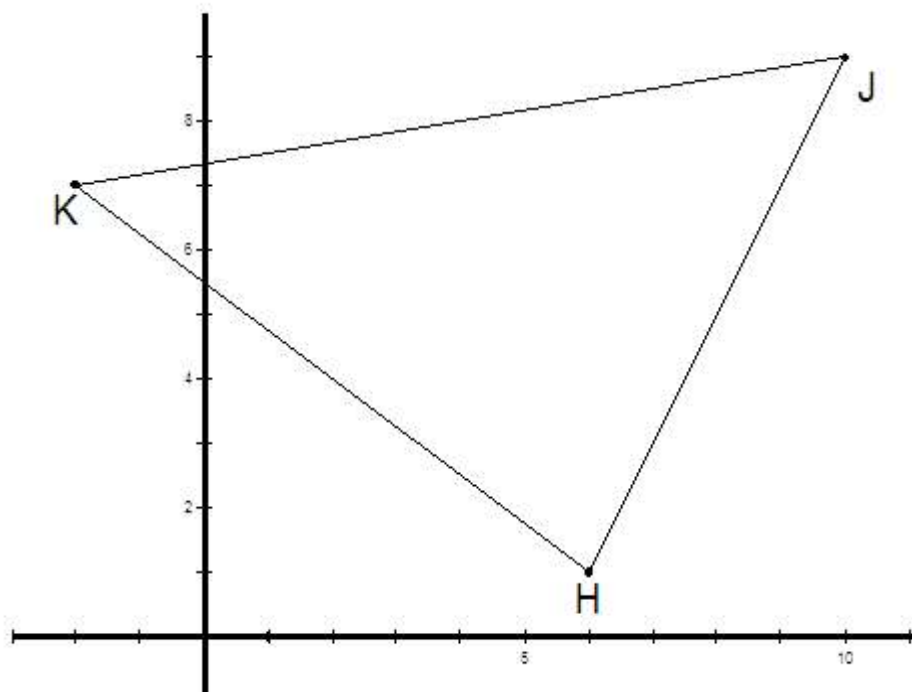


10. a) Find the equation of the line that is perpendicular to the line  $y = -2x + 4$  and is passing through the point (6,-5).

10 b) For  $\triangle HJK$  below, find the equation of the median from K.

10 c) For  $\triangle HJK$  below, find the equation of the altitude from H.

10 d) For  $\triangle HJK$  below, find the equation of the perpendicular bisector of side  $\overline{HK}$ .



11. a) Find the point where the following lines intersect:

$$y = 2x - 5$$

$$y = \frac{1}{2}x + 13$$

11 b) The equation  $y = 540x + 1200$  represents the amount of money spent on starting a certain business and running it for  $x$  months. The equation  $y = 820x$  represents the estimated total earnings after running the business for  $x$  months. Find the point at which these two equations intersect and explain what the point represents.

11 c) Consider  $\triangle HJK$  on the previous page. What are the coordinates of point where the altitude from H hits the side  $\overline{JK}$  ?

12. In the figure below,  $\angle a \cong \angle b$ . Find the probability that a randomly thrown dart will hit in the shaded region.

