

Plane Geometry Concepts

[1] Use your protractor to draw each of the following in the space provided below.

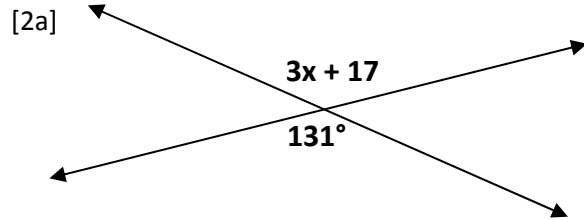
[1a] Perpendicular lines GH and GL

[1b] A 14° angle

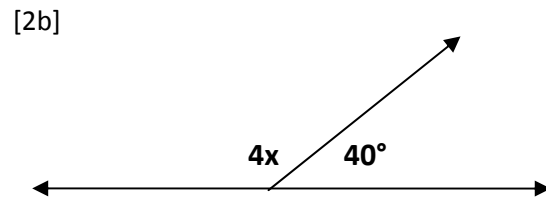
[1c] Supplementary  $\angle FGH$  and  $\angle FGK$

[1d] Complementary  $\angle ACD$  and  $\angle BCD$

[2] Identify the angle relationship shown, then write and solve an equation to determine the value of the variable  $x$ .



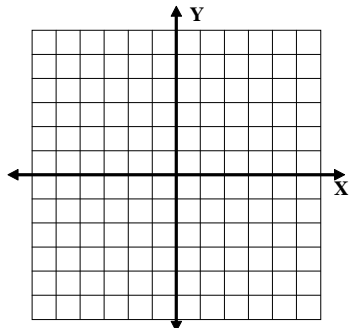
Relationship? \_\_\_\_\_  
Equation? \_\_\_\_\_



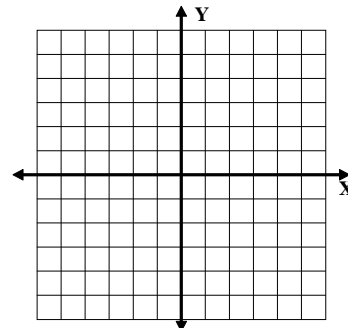
Relationship? \_\_\_\_\_  
Equation? \_\_\_\_\_

[3] Apply your knowledge of coordinate plane and the Pythagorean Theorem to determine the distance between each pair of points.

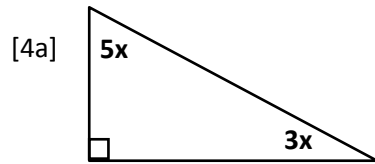
[3a] (5, 2) and (-3, -3)



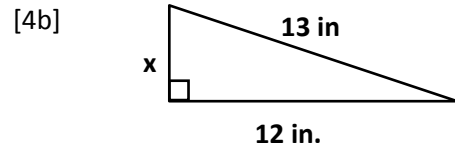
[3b] (0, -3) and (-4, 2)



[4] Apply your knowledge of angle and side relationships in right triangles to write an equation for each of the following, then to solve it for  $x$ .



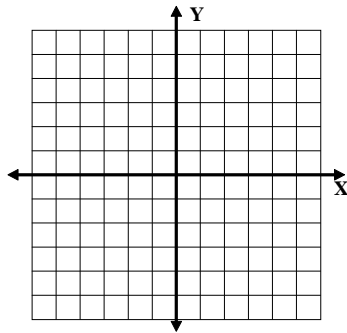
Equation? \_\_\_\_\_



Equation? \_\_\_\_\_

[5] Plot each of the following groups of points, connect them in the order plotted, and then answer the question asked about the plane figure they create.

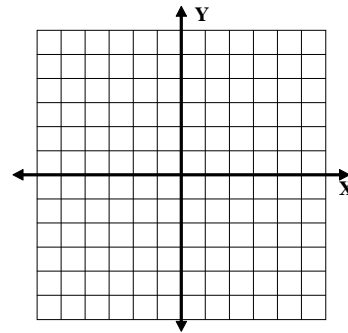
[5a]  $(1, 4)$ ,  $(5, 4)$ , and  $(6, 6)$



What type of triangle is this?

\_\_\_\_\_

[5b]  $(-2, -5)$ ,  $(4, -5)$ ,  $(1, -1)$ , and  $(-2, -1)$


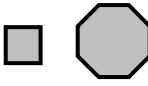




What is the area of this figure?

\_\_\_\_\_

[6] Answer each of the following, similar to questions found on the NJ ASK State Test.

[6a] *Multiple Choice* – circle the one best correct answer. All of the following combinations of shapes given below will tessellate, except...

- |  |  |
|--|--|
| a.  | c.  |
| b.  | d.  |

[6b] *Open Ended Question* – be sure to clearly demonstrate or explain your reasoning. Choose one of the combinations above that is possible and draw a tessellation using at least ten tiles on the back of this paper.