

Day 3 – Task: Proving Triangles

1. Determine the coordinates of a **scalene** triangle.

Support your answer mathematically and justify with a drawing on a coordinate grid.

$(-2, 3)$ & $(2, 0)$

$$AB = \sqrt{(2 - (-2))^2 + (0 - 3)^2}$$

$$= \sqrt{16 + 9}$$

$$= \sqrt{25}$$

$$= 5$$

$(2, 0)$ &
 $(0, -5)$

$$BC = \sqrt{(0 - 2)^2 + (-5 - 0)^2}$$

$$= \sqrt{4 + 25}$$

$$= \sqrt{29}$$

$$= 5.39$$

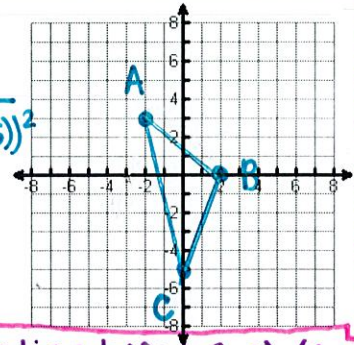
$(0, -5)$ &
 $(-2, 3)$

$$AC = \sqrt{(-2 - 0)^2 + (3 - (-5))^2}$$

$$= \sqrt{4 + 64}$$

$$= \sqrt{68}$$

$$= 8.25$$



ANSWERS WILL DIFFER FOR THIS ONE

Coordinates: $(-2, 3)$, $(2, 0)$, & $(0, -5)$

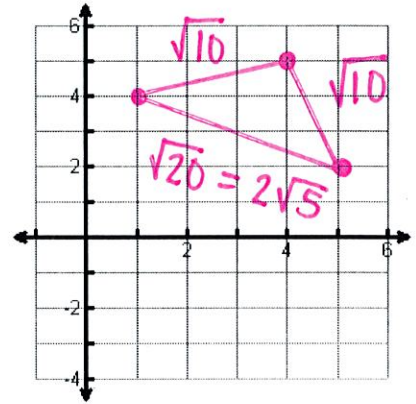
Classify the triangle as **scalene**, **isosceles**, or **equilateral** by finding the distances of the 3 sides. Then, determine if it's a right triangle using slopes.

2. $(1, 4)$, $(4, 5)$, $(5, 2)$

Classify: **Isosceles**

Right Triangle: **YES**

Slopes: $\frac{1}{3}$ & $-\frac{3}{1}$ ✓

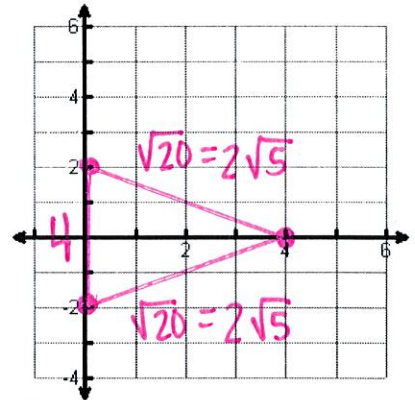


3. $(0, -2)$, $(0, 2)$, $(4, 0)$

Classify: **Isosceles**

Right Triangle: **NO**

Slopes: undef., $-\frac{1}{2}$, & $\frac{1}{2}$ X

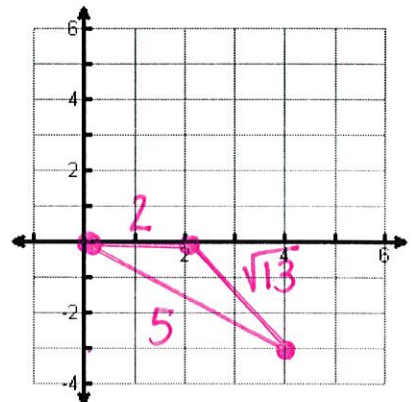


4. $(0, 0)$, $(2, 0)$, $(4, -3)$

Classify: **Scalene**

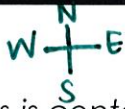
Right Triangle: **NO**

Slopes: 0 , $-\frac{3}{2}$, & $-\frac{3}{4}$ X

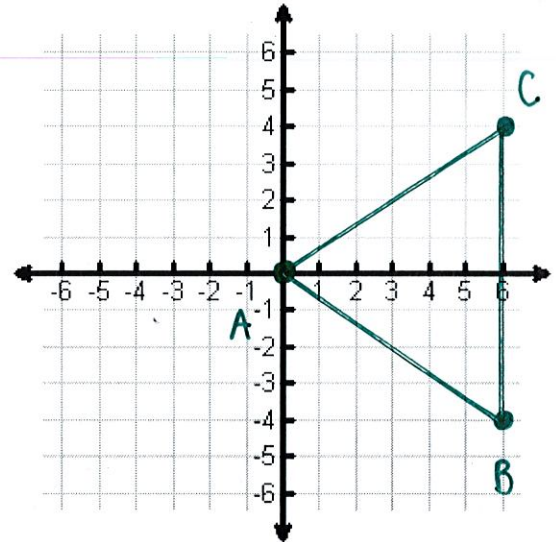


Day 3 – Pythagorean Theorem & the Distance Formula

Part A



- Six Flags is centered at the origin of the grid.
- Georgia Aquarium is located 6 units east and 4 units south.
- Town Center Mall is located 6 units east and 4 units north.



1. Plot Six Flags. Label it as point A. What is the ordered pair? (0,0)
2. Plot the Georgia Aquarium. Label it as point B. What is the ordered pair? (6,-4)
3. Plot Town Center Mall. Label it as point C. What is the ordered pair? (6,4)
4. Connect all three points.

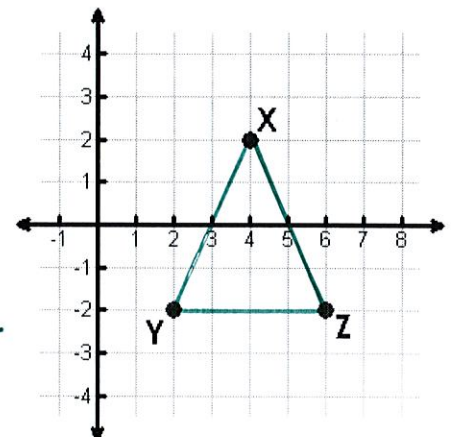
Using the distance formula, find the distance (show all your work). Round to the nearest hundredths.

<p>5. AB $d = \sqrt{(6-0)^2 + (-4-0)^2}$ $(0,0) \& (6,-4) = \sqrt{36+16}$ $= \sqrt{52}$ $d = 2\sqrt{13}$ or 7.21</p>	<p>6. AC $d = \sqrt{(6-0)^2 + (4-0)^2}$ $(0,0) \& (6,4) = \sqrt{36+16}$ $= \sqrt{52}$ $d = 2\sqrt{13}$ or 7.21</p>	<p>7. BC $d = \sqrt{(6-6)^2 + (4-(-4))^2}$ $(6,-4) \& (6,4) = \sqrt{0+64}$ $= \sqrt{64}$ $d = 8$</p>
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8. Classify the triangle (scalene, isosceles, or equilateral). Isosceles
9. Explain your reasoning: it has two congruent sides

Part B: Find the lengths for each side of the triangle. Round to the nearest hundredths.

10. XY $d = \sqrt{20} = 4.47$	11. XZ $d = \sqrt{20} = 4.47$	12. YZ $d = 4$
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13. Classify the triangle (scalene, isosceles, or equilateral). Isosceles
14. Explain your reasoning: it has two congruent sides