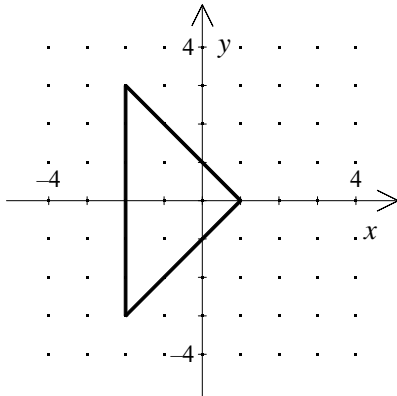


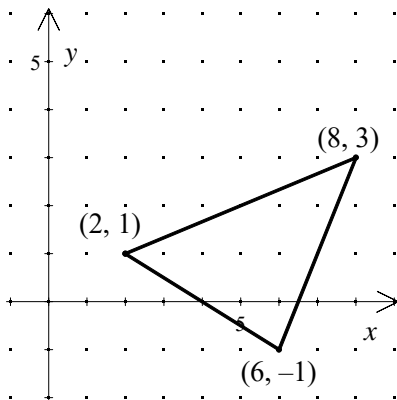
NAME: \_\_\_\_\_

1. Find the perimeter of the triangle.



- [A]  $3 - 3\sqrt{2}$       [B]  $6 + 6\sqrt{2}$   
[C]  $6 - 3\sqrt{2}$       [D]  $6 + 3\sqrt{2}$

2. Find the equation of the line of symmetry of the isosceles triangle shown.



3. If the vertices of a triangle are  $M(4, 3)$ ,  $N(1, 1)$ ,  $O(4, 1)$  and the vertices of its image are  $M'(4, -3)$ ,  $N'(1, -1)$ ,  $O'(4, -1)$ , what is the line of symmetry?

- [A]  $x = 3$       [B]  $y = 2$   
[C]  $x$ -axis      [D]  $y$ -axis

4. The vertices of a triangle are  $A(-3, 2)$ ,  $B(3, 4)$ , and  $C(1, -6)$ . Find the coordinates of  $S$ , the midpoint of  $\overline{AB}$ , and  $T$ , the midpoint of  $\overline{BC}$ . Verify that  $ST = \frac{1}{2} AC$  and that  $\overline{ST} \parallel \overline{AC}$ .

5. The two vertices of the base angles of an isosceles triangle are the points  $A(x_1, y_1)$  and  $B(x_2, y_2)$ . Describe the possible coordinates of the third vertex,  $C$ .

[1] B

[2]  $y + 3x = 17$

[3] C

$S(0, 3)$  and  $T(2, -1)$ ;  $-1$

$$ST = \sqrt{2^2 + (-4)^2} = \sqrt{20} = 2\sqrt{5} \text{ and}$$

$$AC = \sqrt{(-4)^2 + (-8)^2} = \sqrt{80} = 4\sqrt{5}, \text{ so}$$

$$ST = \frac{1}{2} AC; \text{ slope of } \overline{ST} = \frac{4}{-2} = -2 \text{ and}$$

[4] slope of  $\overline{AC} = \frac{-8}{4} = -2$ , so  $\overline{ST} \parallel \overline{AC}$ .

a point on the line containing the midpoint of

$$\overline{AB}, \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \text{ and perpendicular to}$$

[5]  $\overline{AB}$