

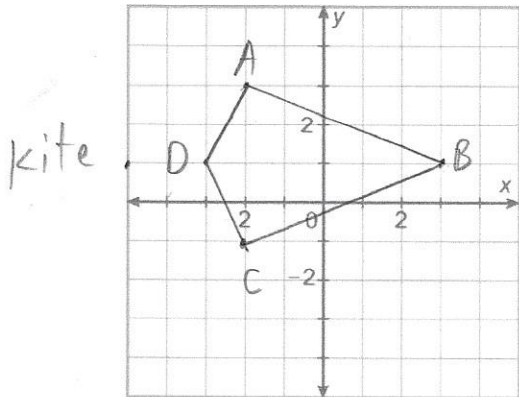
LESSON
10-5

Perimeter and Area on the Coordinate Plane

Practice and Problem Solving: A/B

Draw and classify each polygon with the given vertices. Find the perimeter and area of the polygon to the nearest tenth.

1. A(-2, 3), B(3, 1), C(-2, -1), D(-3, 1)



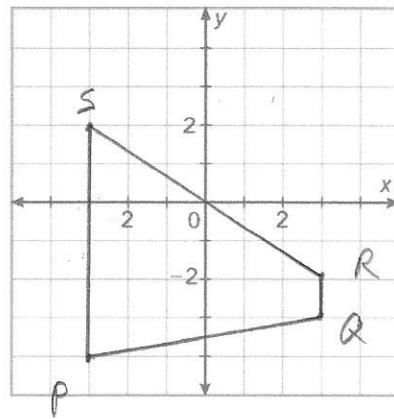
$$AD = DC = \sqrt{5} = 2.2$$

$$AB = BC = \sqrt{29} = 5.4$$

$$P = 15.2$$

$$A = \frac{1}{2}(4)(6) = 12$$

2. P(-3, -4), Q(3, -3), R(3, -2), S(-3, 2)



$$PQ = \sqrt{37} = 6.1$$

$$QR = 1$$

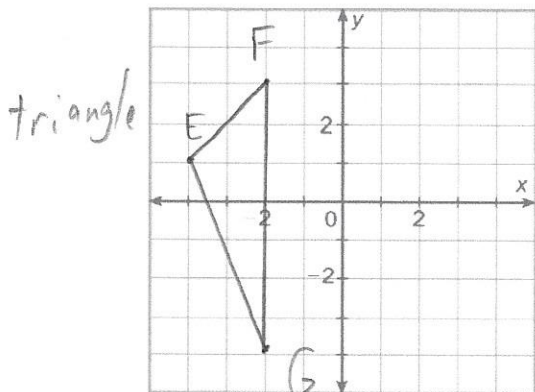
$$RS = \sqrt{52} = 7.2$$

$$SP = 6$$

$$P = 20.3$$

$$A = \frac{1}{2}(1+6)(6) = 21$$

3. E(-4, 1), F(-2, 3), G(-2, -4)



$$EF = \sqrt{8} = 2.8$$

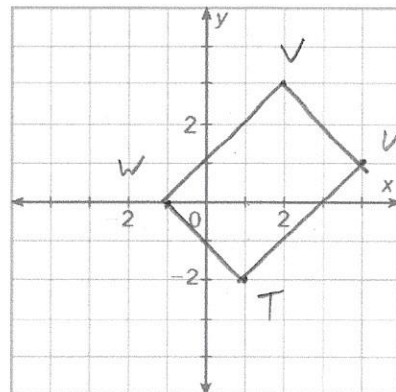
$$FG = 7$$

$$GE = \sqrt{29} = 5.4$$

$$P = 15.2$$

$$A = \frac{1}{2}(7)(2) = 7$$

4. T(1, -2), U(4, 1), V(2, 3), W(-1, 0)



$$TU = \sqrt{18} = 4.2$$

$$UV = \sqrt{8} = 2.8$$

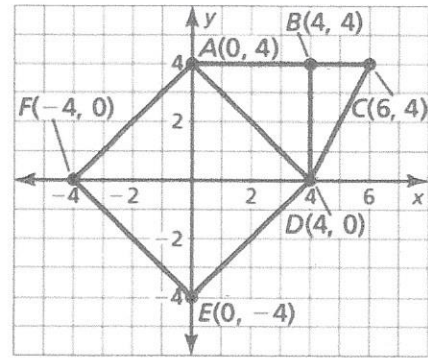
$$VW = \sqrt{18} = 4.2$$

$$WT = \sqrt{8} = 2.8$$

$$P = 14.1$$

$$A = (\sqrt{18})(\sqrt{8}) = 12$$

In Exercises 5-9, use the diagram.



5. Find the perimeter of square $ADEF$.

$$AD = \sqrt{32} = 5.7$$

$$P = 4\sqrt{32} = 22.6$$

6. Find the perimeter of $\triangle BCD$.

$$BC = 2$$

$$BD = 4$$

$$CD = \sqrt{20} = 4.5$$

$$P = 10.5$$

7. Find the area of square $ADEF$.

$$A = \sqrt{32} \cdot \sqrt{32} = 32$$

8. Find the area of $\triangle ACD$.

$$A = \frac{1}{2}(6)(4) = 12$$

9. Find the area of pentagon $ACDEF$.

$$32 + 12 = 44$$

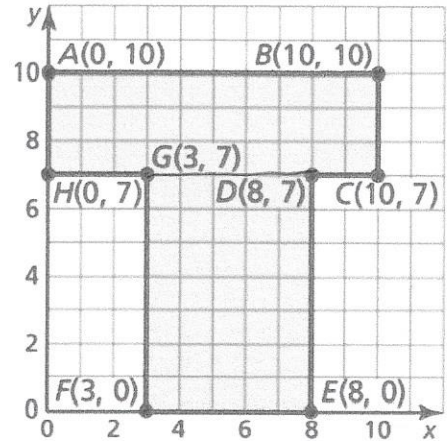
10. You are buying tile for your bathroom floor and baseboards for your bathroom walls. In the figure, the entire polygon represents the layout of the floor. Each unit in the coordinate plane represents 1 foot.

- a. Find the area of the floor.

$$3 \cdot 10 + 5 \cdot 7 = 65$$

- b. Find the perimeter of the floor.

$$10 + 3 + 2 + 7 + 5 + 7 + 3 + 3 = 40$$



- c. The cost of the baseboard is \$2 per foot. The cost of the tile is \$2.50 per square foot. Find the total cost to buy tile and baseboards for your bathroom.

$$2(40) + 2.5(65) = \$242.50$$

11. Find the perimeter of the polygon LMNP.

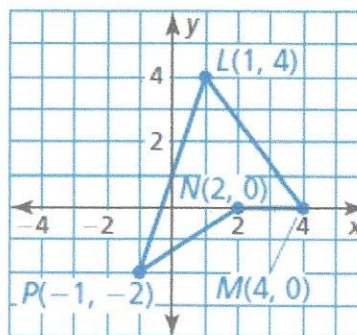
$$LM = \sqrt{25} = 5$$

$$MN = 2$$

$$NP = \sqrt{13} = 3.6$$

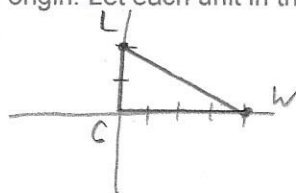
$$PL = \sqrt{40} = 6.3$$

$$P = 16.9$$



12. You are going for a hike in the woods. You hike to a waterfall that is 4 miles east of where you left your car. You then hike to a lookout point that is 2 miles north of your car. From the lookout point, you return to your car.

a. Map out your route in a coordinate plane with your car at the origin. Let each unit in the coordinate plane represent 1 mile. Assume you travel along straight paths.



b. How far do you travel during the entire hike?

$$CW = 4$$

$$WL = \sqrt{20} = 4.5$$

$$LC = 2$$

$$P = 10.5 \text{ mi.}$$

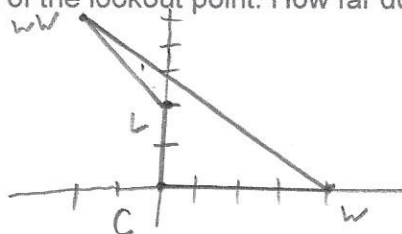
c. When you leave the waterfall, you decide to hike to an old wishing well before going to the lookout point. The wishing well is 3 miles north and 2 miles west of the lookout point. How far do you travel during the entire hike?

$$CW = 4$$

$$WW = \sqrt{61} = 7.8$$

$$WWL = \sqrt{13} = 3.6$$

$$LC = 2$$



$$P = 17.4 \text{ mi.}$$