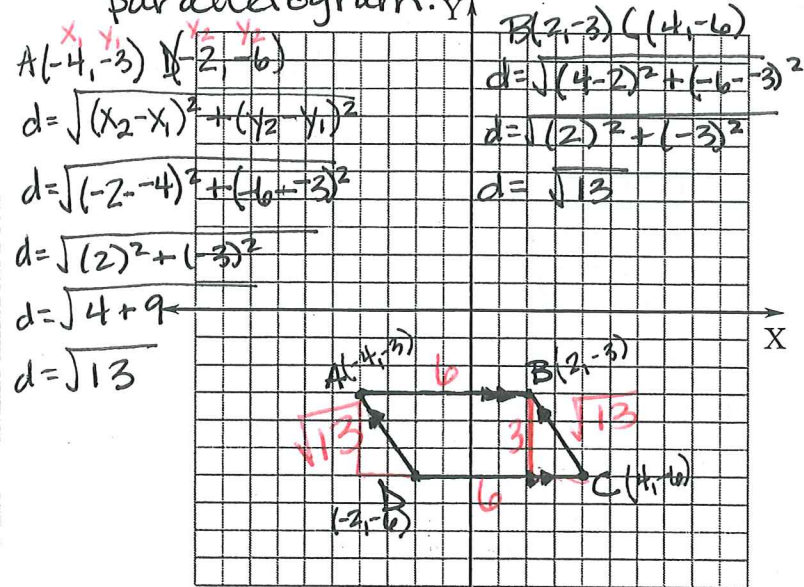


Ch. 11 Areas on a Coordinate Plane

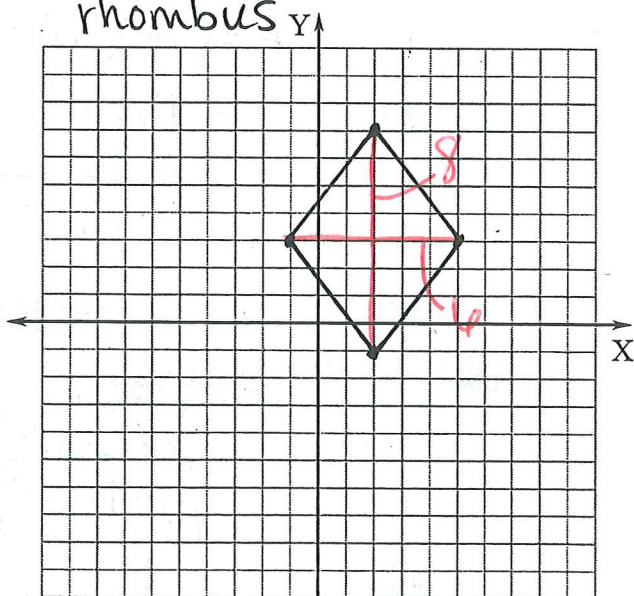
① Determine whether this quad. is a square, rectangle, or a parallelogram.



Find the perimeter and area.

$P = 6 + \sqrt{13} + 6 + \sqrt{13}$ $A = 6(3)$
 $P = 12 + 2\sqrt{13}$ $A = 18 \text{ units}^2$

③ Find the area of the rhombus.

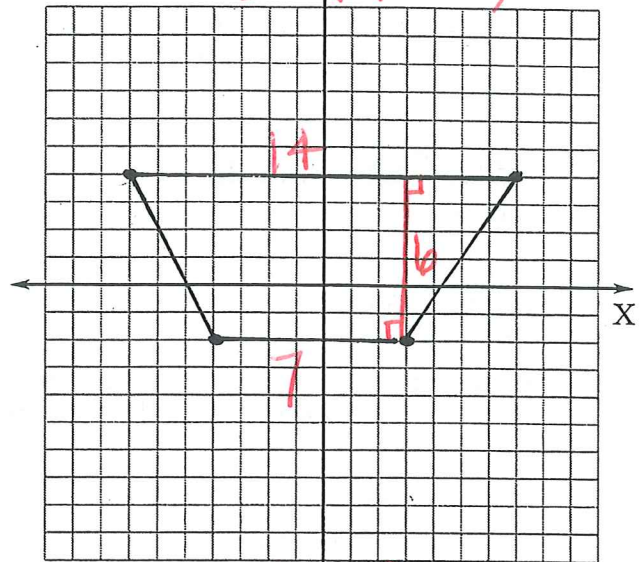


$A = \frac{1}{2} d_1 \cdot d_2$

$A = \frac{1}{2} (4 \times 8) = 16 \text{ units}^2$

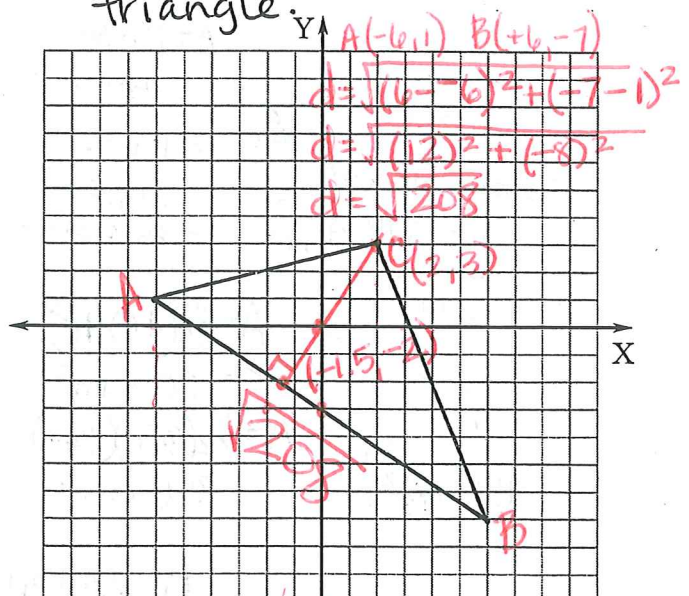
② Find the area of the trapezoid.

$A = \frac{1}{2} h (b_1 + b_2)$



$A = \frac{1}{2} (6)(14 + 7)$
 $= 63 \text{ units}^2$

④ Find the area of the triangle.



$m = \frac{-4}{6} = -\frac{2}{3}$ $A = \frac{1}{2} bh$

$\perp m = \frac{3}{2}$

$A = \frac{1}{2} (\sqrt{208}) (6 \cdot 1)$

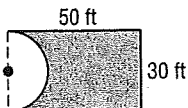
$d = \sqrt{(2 - 1.5)^2 + (3 - 2)^2}$ $A = 44 \text{ units}^2$
 $= \sqrt{(0.5)^2 + (1)^2} = 1.118$

11-4 Study Guide and Intervention

Areas of Composite Figures

Composite Figures A composite figure is a figure that can be separated into regions that are basic figures. To find the area of a composite figure separate the figure into basic figures of which we can find the area. The sum of the areas of the basic figures is the area of the figure.

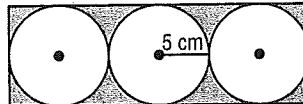
Example 1 Find the area of the composite figure.



The figure is a rectangle minus one half of a circle. The radius of the circle is one half of 30 or 15.

$$\begin{aligned} A &= lw - \frac{1}{2}\pi r^2 \\ &= 50(30) - 0.5\pi(15)^2 \\ &\approx 1146.6 \text{ or about } 1147 \text{ ft}^2 \end{aligned}$$

Example 2 Find the area of the shaded region.



The dimensions of the rectangle are 10 centimeters and 30 centimeters. The area of the shaded region is

$$\begin{aligned} (10)(30) - 3\pi(5)^2 &= 300 - 75\pi \\ &\approx 64.4 \text{ cm}^2 \end{aligned}$$

Exercises

Find the area of each figure. Round to the nearest tenth if necessary.

1. $A = 15 \cdot 34 = 510 \text{ ft}^2$
 $A = \pi r^2 \cdot \frac{1}{2} = \pi(7.5)^2 \cdot \frac{1}{2} = 88.4 \text{ ft}^2$
 Total = $510 + 88.4 = 598.4 \text{ ft}^2$

2. $A = (24)(20) = 480 \text{ in}^2$
 $\times 2 = 960 \text{ in}^2$

3. $A = \frac{1}{2}(40)(10) = 200 \text{ cm}^2$
 $A = \frac{1}{2}(38)(14) = 266 \text{ cm}^2$
 466 cm^2

4. $A = 22(22) = 484 \text{ cm}^2$
 $A = \frac{1}{2}(22)(20) = 220 \text{ cm}^2$
 704 cm^2

5. $A = \frac{1}{2}(h)(b_1 + b_2) = \frac{1}{2}(32)(20 + 40) = \frac{1}{2}(32)(60) = 960$
 $960 \cdot 2 = 1920 \text{ m}^2$

6. $A = \frac{1}{2}(35)(7.5) = 131.25 \text{ yd}^2$
 $\times 2 = 262.5 \text{ yd}^2$

7. Refer to Example 2 above. Draw the largest possible square inside each of the three circles. What is the total area of the three squares?