Florida Geometry
Lesson 1B-8 - Practice and Problem-Solving Exercises Solutions

7. Convert yd to ft: $100 \text{ yd}\dfrac{3 \text{ ft}}{1 \text{ yd}} = 300 \text{ ft}$.

$$\begin{aligned} A &= bh \\ &= 300(20) \\ &= 6000 \text{ ft}^2 \end{aligned}$$

11. $$\begin{aligned} A &= \pi r^2 \\ &= \pi(0.1)^2 \\ &= 0.01\pi \text{ or } \frac{1}{100}\pi \text{ m}^2 \end{aligned}$$

18. You would use *area* because the wall is a surface.

21. The area of the shaded region is the area of the larger triangle minus the area of the smaller triangle; $\frac{1}{2}(10)(6) - \frac{1}{2}(3)(2) = 30 - 3 = 27 \text{ in.}^2$.

31. The outer perimeter is equivalent to the circumference of a circle whose diameter is $40 + 10 + 10 = 60$ yd plus two 100-yd widths of the rectangular portion of the field: $\pi d + 2b = \pi(60) + 2(100) \approx 188.5 + 200 = 388.5$ yd.

32. Let s be the length of each side of the square. Then

$$\begin{aligned} C &= 4s \\ 260 &= 4s \\ s &= \frac{260}{4} \\ s &= 65 \text{ ft} \end{aligned}$$

The area of the walkway is the area of the square formed by the outer perimeter of the walkway minus the area of the garden: $(s+8)(s+8) - s^2 = s^2 + 16s + 64 - s^2 = 16(65) + 64 = 1104 \text{ ft}^2$.

33. Using the Distance Formula,

$$\begin{aligned} AB &= \sqrt{(x_2 - x_1)^2 + (y_x - y_1)^2} \\ &= \sqrt{(-2-4)^2 + (3-(-1))^2} \\ &= \sqrt{(-6)^2 + (4)^2} \\ &= \sqrt{36+16} \\ &= \sqrt{52} \end{aligned}$$

Since M is the midpoint of $\overline{AB}$, $MB = \dfrac{\sqrt{52}}{2} \approx 3.6$ units.

34. $$\begin{aligned} CD &= \sqrt{(x_2 - x_1)^2 + (y_x - y_1)^2} \\ &= \sqrt{(5-12)^2 + (19-(-8))^2} \\ &= \sqrt{(-7)^2 + (27)^2} \\ &= \sqrt{49+729} \\ &= \sqrt{778} \\ &\approx 27.9 \text{ units} \end{aligned}$$

35a. $$\begin{aligned} AB &= \sqrt{(x_2 - x_1)^2 + (y_x - y_1)^2 a} \\ &= \sqrt{(7-4)^2 + (9-1)^2} \\ &= \sqrt{(3)^2 + (8)^2} \\ &= \sqrt{9+64} \\ &= \sqrt{73} \\ &\approx 8.5 \text{ units} \end{aligned}$$

35b. $\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right) = \left(\dfrac{4+7}{2}, \dfrac{1+9}{2}\right) = \left(\dfrac{11}{2}, 5\right)$ or $(5.5, 5)$

36a. $$\begin{aligned} AB &= \sqrt{(x_2 - x_1)^2 + (y_x - y_1)^2 a} \\ &= \sqrt{(-3-0)^2 + (8-3)^2} \\ &= \sqrt{(-3)^2 + (5)^2} \\ &= \sqrt{9+25} \\ &= \sqrt{34} \\ &\approx 5.8 \text{ units} \end{aligned}$$

36b. $\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right) = \left(\dfrac{-3+0}{2}, \dfrac{8+3}{2}\right) = \left(-\dfrac{3}{2}, \dfrac{11}{2}\right)$ or $(-1.5, 5.5)$

37a. $$\begin{aligned} AB &= \sqrt{(x_2 - x_1)^2 + (y_x - y_1)^2 a} \\ &= \sqrt{(-4-(-1))^2 + (-5-1)^2} \\ &= \sqrt{(-3)^2 + (-6)^2} \\ &= \sqrt{9+36} \\ &= \sqrt{45} \\ &\approx 6.7 \text{ units} \end{aligned}$$

37b. $\left(\dfrac{x_1 + x_2}{2}, \dfrac{y_1 + y_2}{2}\right) = \left(\dfrac{-1+(-4)}{2}, \dfrac{1+(-5)}{2}\right) = \left(-\dfrac{5}{2}, -2\right)$ or $(-2.5, -2)$

38. Since $\overleftrightarrow{BG}$ is the *perpendicular* bisector of $\overline{WR}$ at point K, $m\angle BKR = 90$.

39. Since $\overleftrightarrow{BG}$ is the perpendicular *bisector* of $\overline{WR}$ at point K, $\overline{WK} \cong \overline{KR}$.