

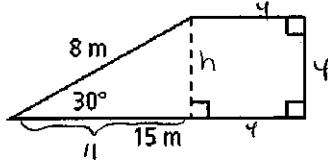
Name: key  
 Geometry \_\_\_\_\_

Date: \_\_\_\_\_  
 Band: \_\_\_\_\_

Unit 10: Area PBA Practice

Find the area of each polygon.

1.



$$\sin 30 = \frac{h}{8}$$

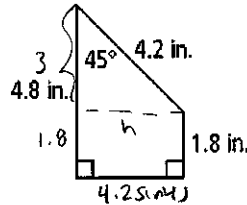
$$h = 8 \sin 30 = 4$$

$$\Delta = \frac{1}{2}bh = \frac{1}{2}(11)(4) = 22$$

$$\square = s^2 = 4^2 = 16$$

$$\text{Area} = \Delta + \square = 22 + 16 = \boxed{38 \text{ m}^2}$$

2.



$$\sin 45 = \frac{h}{4.2}$$

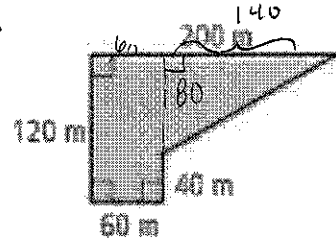
$$h = 4.2 \sin 45$$

$$\Delta = \frac{1}{2}bh = \frac{1}{2}(3)(4.2 \sin 45) = 6.3 \sin 45$$

$$\square = bh = (4.2 \sin 45)(1.8) = 7.56 \sin 45$$

$$\text{Area} = \Delta + \square = 6.3 \sin 45 + 7.56 \sin 45 = \boxed{9.8 \text{ in}^2}$$

3.



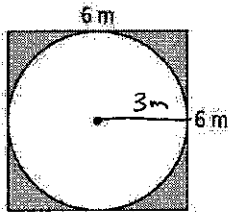
$$\Delta = \frac{1}{2}bh = \frac{1}{2}(140)(80) = 5600$$

$$\square = bh = 60(120) = 7200$$

$$\text{Area} = \Delta + \square = 5600 + 7200 = \boxed{12800 \text{ m}^2}$$

Find the area of the shaded region. Leave your answer in terms of  $\pi$  and in simplest radical form.

5.



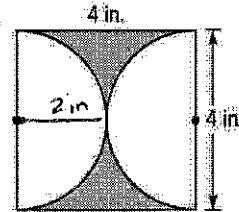
$$\text{Area} = \square - \circ$$

$$= s^2 - \pi r^2$$

$$= 6^2 - \pi(3)^2$$

$$= \boxed{36 - 9\pi \text{ m}^2}$$

6.



$$\text{Area} = \square - \circ$$

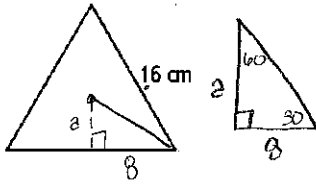
$$= s^2 - \pi r^2$$

$$= 4^2 - \pi(2)^2$$

$$= \boxed{16 - 4\pi \text{ in}^2}$$

Find the area of each regular polygon. Round your answer to the nearest tenth.

7.



$$8 = \sqrt{3} \cdot a$$

$$\frac{8}{\sqrt{3}} = a$$

$$a = \frac{8\sqrt{3}}{3}$$

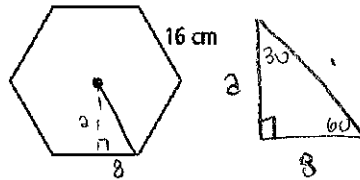
$$A = \frac{1}{2} a p$$

$$= \frac{1}{2} \left( \frac{8\sqrt{3}}{3} \right) (48)$$

$$= \boxed{110.9 \text{ cm}^2}$$

$$P = 16 \cdot 3 = 48$$

8.



$$a = \sqrt{3} \cdot 8$$

$$a = 8\sqrt{3}$$

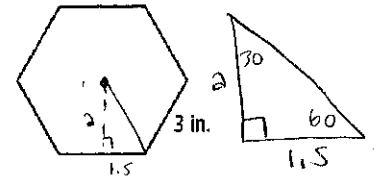
$$P = 16 \cdot 6 = 96$$

$$A = \frac{1}{2} a p$$

$$= \frac{1}{2} (8\sqrt{3}) (96)$$

$$= \boxed{665.1 \text{ cm}^2}$$

9.



$$a = \sqrt{3} \cdot 1.5$$

$$a = 1.5\sqrt{3}$$

$$A = \frac{1}{2} a p$$

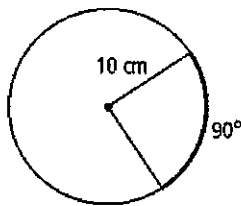
$$= \frac{1}{2} (1.5\sqrt{3}) (18)$$

$$= \boxed{23.4 \text{ in}^2}$$

$$P = 3 \cdot 6 = 18$$

Find the length of each darkened arc. Leave your answer in terms of  $\pi$ .

10.

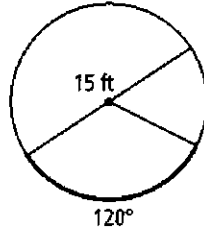


$$\text{arc length} = \frac{90}{360} \cdot 2\pi(10)$$

$$= \frac{1}{4} \cdot 20\pi$$

$$= \boxed{5\pi \text{ cm}}$$

11.

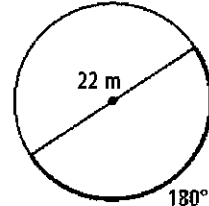


$$\text{arc length} = \frac{120}{360} \cdot \pi(15)$$

$$= \frac{1}{3} \cdot 15\pi$$

$$= \boxed{5\pi \text{ ft}}$$

12.



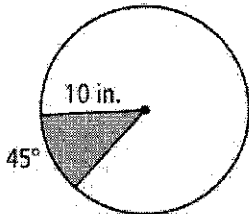
$$\text{arc length} = \frac{180}{360} \cdot \pi(22)$$

$$= \frac{1}{2} \cdot 22\pi$$

$$= \boxed{11\pi \text{ m}}$$

Find the area of each shaded sector of a circle. Leave your answer in terms of  $\pi$ .

13.

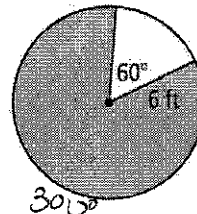


$$\text{sector area} = \frac{45}{360} \cdot \pi(10)^2$$

$$= 0.125 \cdot 100\pi$$

$$= \boxed{12.5\pi \text{ in}^2}$$

14.

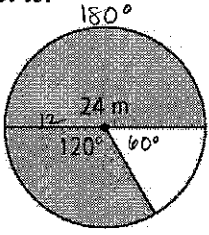


$$\text{sector area} = \frac{60}{360} \cdot \pi(6)^2$$

$$= \frac{1}{6} \cdot 36\pi$$

$$= \boxed{6\pi \text{ ft}^2}$$

15.



$$\text{sector area} = \frac{120}{360} \cdot \pi(12)^2$$

$$= \frac{1}{3} \cdot 144\pi$$

$$= \boxed{48\pi \text{ m}^2}$$