

Concepts:

1. What happens to the circumference of a circle whose radius is doubled?

$$C = 2\pi r$$

old

$$C = 2\pi(2r) = 4\pi r$$

new

Circumference is doubled

2. What happens to the area of a circle whose radius is doubled?

$$A = \pi r^2$$

old

$$A = \pi(2r)^2 = 4\pi r^2$$

new

area is multiplied by 4

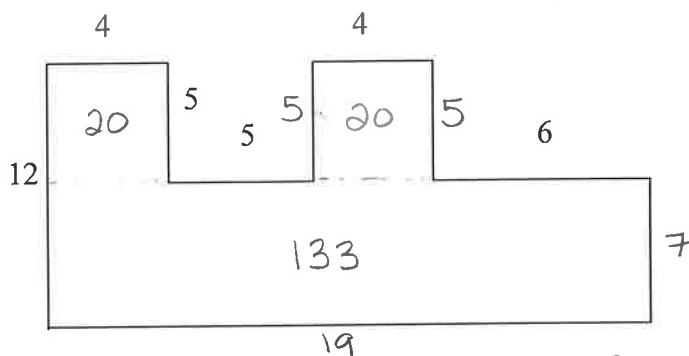
3. Why can't we bisect a line?

you can't measure it to cut it in half

4. What is the difference between perimeter and area?

Perimeter is distance around the outside,
Area is unit squares inside a shape

5. Find the perimeter and area of the figure.

Perimeter: 72 units Area: 133 units²

6. Determine if the side lengths given could be a triangle, if so, tell if the triangle is acute, obtuse or right.

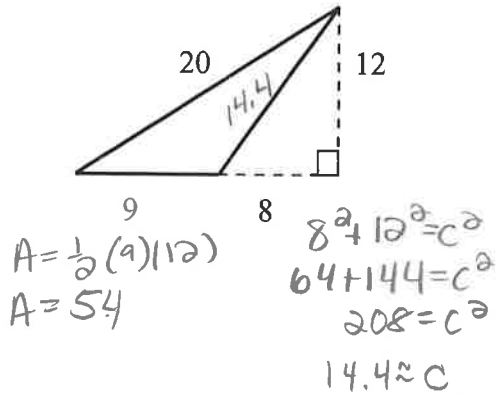
a. 6, 2, 7 $6+2 > 7$ ✓
 $7^2 \square 6^2 + 2^2$
 $49 \square 36 + 4$
 $49 \square 40$
 obtuse

b. 7, 8, 9 $7+8 > 9$ ✓
 $9^2 \square 7^2 + 8^2$
 $81 \square 49 + 64$
 $81 \square 113$
 acute

c. 10, 10, 10 $10+10 > 10$ ✓
 $10^2 \square 10^2 + 10^2$
 $100 \square 100 + 100$
 $100 \square 200$
 acute

Find the area and perimeter of each shape:

7.

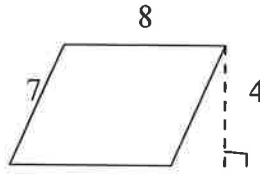


$A = \frac{1}{2}(9)(12)$
 $A = 54$

Area = 54 units²

Perimeter = 43.4 units

8.

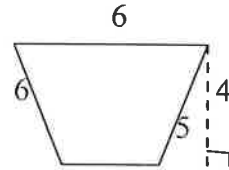


$A = 8 \cdot 4$

Area = 32 units²

Perimeter = 30 units

9.

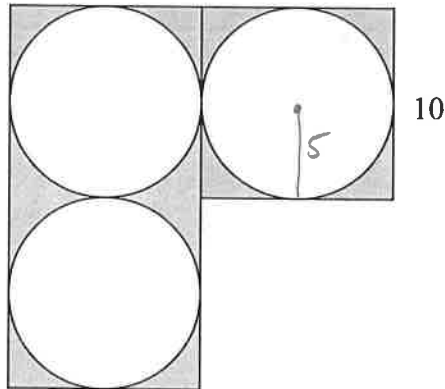


$A = \frac{1}{2}(4)(6+2)$
 $A = \frac{1}{2}(4)(8)$

Area = 16 units²

Perimeter = 19 units

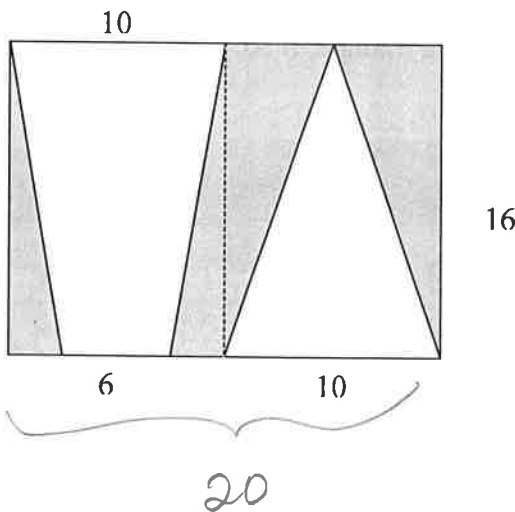
10. Find the exact area of the shaded region.



3 squares + 3 circles
 $3(10 \times 10)$ $3(\pi(5)^2)$
 $3(100)$ $3(25\pi)$

$300 - 75\pi$ units²

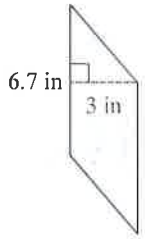
11. Find the exact area of the shaded region.



rectangle - (trapezoid + triangle)
 20×16 $\frac{1}{2}(16)(6+10)$ $\frac{1}{2}(10)(16)$
 320 $\frac{1}{2}(16)(16)$ 80
 $320 - (128 + 80)$
 $320 - 208 =$ 112 units²

Find the area of each.

12)

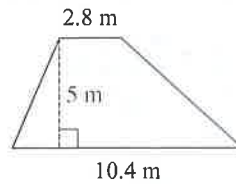


$$A = bh$$

$$A = (6.7)(3)$$

$$A = 20.1 \text{ in}^2$$

13)



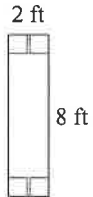
$$A = \frac{1}{2} h(a+b)$$

$$A = \frac{1}{2} (5)(2.8+10.4)$$

$$A = \frac{1}{2} (5)(13.2)$$

$$A = 33 \text{ m}^2$$

14)

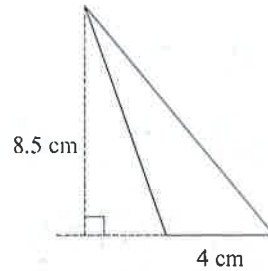


$$A = lw$$

$$A = 8 \cdot 2$$

$$A = 16 \text{ ft}^2$$

15)

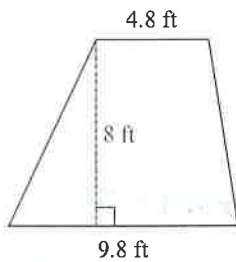


$$A = \frac{1}{2} bh$$

$$A = \frac{1}{2} (4)(8.5)$$

$$A = 17 \text{ cm}^2$$

16)



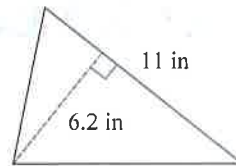
$$A = \frac{1}{2} h(a+b)$$

$$A = \frac{1}{2} (8)(4.8+9.8)$$

$$A = \frac{1}{2} (8)(14.6)$$

$$A = 58.4 \text{ ft}^2$$

17)

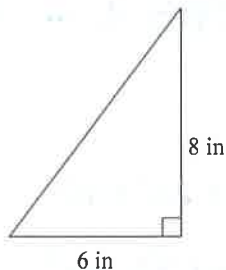


$$A = \frac{1}{2} bh$$

$$A = \frac{1}{2} (11)(6.2)$$

$$A = 34.1 \text{ in}^2$$

18)



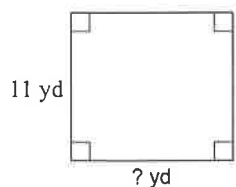
$$A = \frac{1}{2} bh$$

$$A = \frac{1}{2} (6)(8)$$

$$A = 24 \text{ in}^2$$

Find the missing measurement. Round your answer to the nearest tenth.

19)



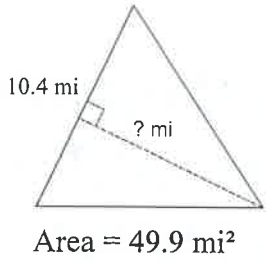
Area = 132 yd²

$$A = lw$$

$$\frac{132}{11} = \frac{11w}{11}$$

$$w = 12 \text{ yd}$$

20)



$$A = \frac{1}{2}bh$$

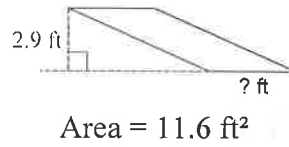
$$49.9 = \frac{1}{2}(10.4)(h)$$

$$49.9 = 5.2h$$

$$\frac{49.9}{5.2} = \frac{5.2h}{5.2}$$

$$h = 9.6 \text{ mi}$$

21)



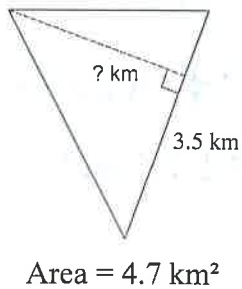
$$A = bh$$

$$11.6 = b \cdot 2.9$$

$$\frac{11.6}{2.9} = \frac{b \cdot 2.9}{2.9}$$

$$b = 4 \text{ ft}$$

22)



$$A = \frac{1}{2}bh$$

$$4.7 = \frac{1}{2}(3.5)h$$

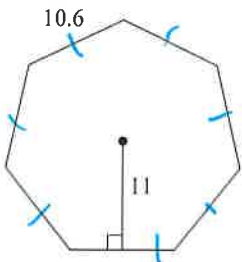
$$4.7 = 1.75h$$

$$\frac{4.7}{1.75} = \frac{1.75h}{1.75}$$

$$h = 2.7 \text{ km}$$

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

23)

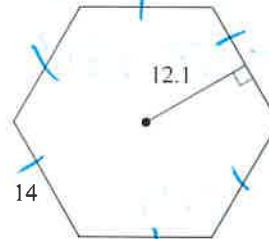


$$p = 7 \times 10.6 = 74.2$$

$$A = \frac{1}{2}(11)(74.2)$$

$$A = 408.1 \text{ units}^2$$

24)

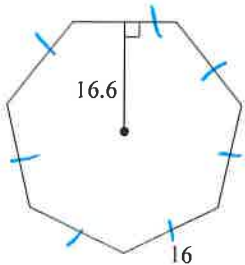


$$p = 6 \times 14 = 84$$

$$A = \frac{1}{2}(12.1)(84)$$

$$A = 508.2 \text{ units}^2$$

25)

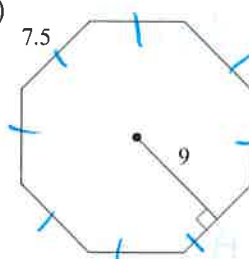


$$p = 7 \times 16 = 112$$

$$A = \frac{1}{2}(16.6)(112)$$

$$A = 929.6 \text{ units}^2$$

26)

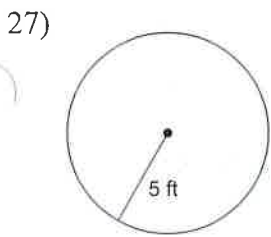


$$p = 8 \times 7.5 = 60$$

$$A = \frac{1}{2}(9)(60)$$

$$A = 270 \text{ units}^2$$

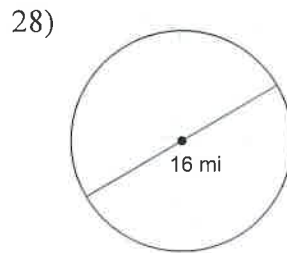
Find the area of each.



$$A = \pi r^2$$

$$A = \pi (5)^2$$

$$A = 25\pi \text{ ft}^2$$



$$d = 16$$

$$r = 8$$

$$A = \pi (8)^2$$

$$A = 64\pi \text{ mi}^2$$

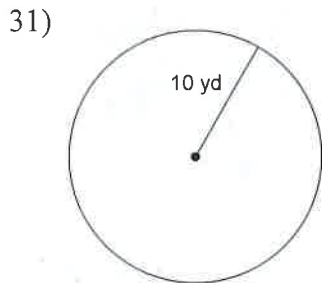
29) radius = 6 m

$$A = 36\pi \text{ m}^2$$

30) diameter = 12 km
 $r = 6$

$$A = 36\pi \text{ km}^2$$

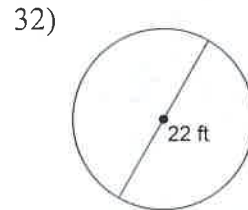
Find the circumference of each circle.



$$C = 2\pi r$$

$$C = 2\pi (10)$$

$$C = 20\pi \text{ yd}$$



$$C = \pi d$$

$$C = 22\pi \text{ ft}$$

33) radius = 2 mi

$$C = 4\pi \text{ mi}$$

34) diameter = 6 m
 $r = 3$

$$C = 6\pi \text{ m}$$

Find the radius of each circle.

35) circumference = 16π km

$$C = 2\pi r$$

$$16\pi = 2\pi r$$

$$r = 8 \text{ km}$$

36) circumference = 22π in

$$\frac{22\pi}{2\pi} = \frac{2\pi r}{2\pi}$$

$$r = 11 \text{ in}$$

37) circumference = 4π cm

$$4\pi = 2\pi r$$

$$r = 2 \text{ cm}$$

Find the diameter of each circle.

38) circumference = 16π cm

$$16\pi = \pi d$$

$$d = 16 \text{ cm}$$

39) circumference = 18π in

$$18\pi = \pi d$$

$$d = 18 \text{ in}$$

Find the area of each.

40) circumference = 6π ft

$$C = 2\pi r$$

$$6\pi = 2\pi r$$

$$r = 3$$

$$A = \pi r^2$$

$$A = \pi (3)^2$$

$$A = 9\pi \text{ ft}^2$$

41) circumference = 24π m

$$C = 2\pi r$$

$$24\pi = 2\pi r$$

$$r = 12$$

$$A = \pi r^2$$

$$A = \pi (12)^2$$

$$A = 144\pi \text{ m}^2$$

Find the radius of each circle.

42) area = 81π mi²

$$A = \pi r^2$$

$$81\pi = \pi r^2$$

$$\sqrt{81} = \sqrt{r^2}$$

$$r = 9 \text{ mi}$$

43) area = 16π km²

$$\sqrt{16\pi} = \sqrt{\pi r^2}$$

$$r = 4 \text{ km}$$

44) area = 49π m²

$$\sqrt{49\pi} = \sqrt{\pi r^2}$$

$$r = 7 \text{ m}$$

Find the diameter of each circle.

45) area = 81π ft²

$$\sqrt{81\pi} = \sqrt{\pi r^2}$$

$$r = 9$$

$$d = 18 \text{ ft}$$

46) area = 16π km²

$$\sqrt{16\pi} = \sqrt{\pi r^2}$$

$$r = 4$$

$$d = 8 \text{ km}$$

Find the circumference of each circle.

47) area = 36π in²

$$A = \pi r^2$$

$$\sqrt{36\pi} = \sqrt{\pi r^2}$$

$$r = 6$$

$$C = 2\pi r$$

$$C = 2\pi (6)$$

$$C = 12\pi \text{ in}$$

48) area = 9π ft²

$$A = \pi r^2$$

$$\sqrt{9\pi} = \sqrt{\pi r^2}$$

$$r = 3$$

$$C = 2\pi r$$

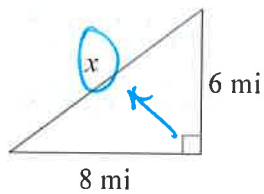
$$C = 2\pi (3)$$

$$C = 6\pi \text{ ft}$$

$$a^2 + b^2 = c^2$$

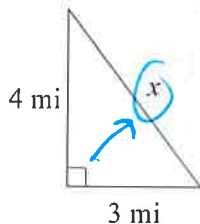
Find the missing side of each triangle. Round your answers to the nearest tenth if necessary.

49)



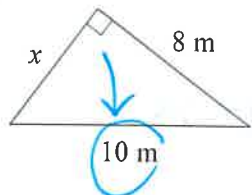
$$\begin{aligned} 6^2 + 8^2 &= x^2 \\ 36 + 64 &= x^2 \\ \sqrt{100} &= \sqrt{x^2} \\ x &= 10 \text{ mi} \end{aligned}$$

50)



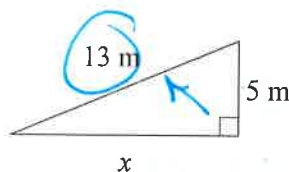
$$\begin{aligned} 3^2 + 4^2 &= x^2 \\ 9 + 16 &= x^2 \\ \sqrt{25} &= \sqrt{x^2} \\ x &= 5 \text{ mi} \end{aligned}$$

51)



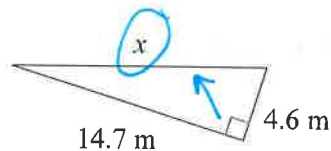
$$\begin{aligned} x^2 + 8^2 &= 10^2 \\ x^2 + 64 &= 100 \\ \sqrt{x^2} &= \sqrt{36} \\ x &= 6 \text{ m} \end{aligned}$$

52)



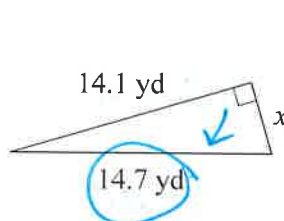
$$\begin{aligned} x^2 + 5^2 &= 13^2 \\ x^2 + 25 &= 169 \\ -25 \quad -25 \\ \hline \sqrt{x^2} &= \sqrt{144} \\ x &= 12 \text{ m} \end{aligned}$$

53)



$$\begin{aligned} 14.7^2 + 4.6^2 &= x^2 \\ 216.09 + 21.16 &= x^2 \\ \sqrt{237.25} &= \sqrt{x^2} \\ x &= 15.4 \text{ m} \end{aligned}$$

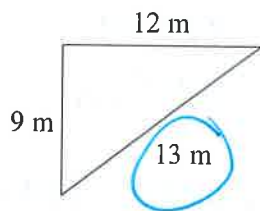
54)



$$\begin{aligned} 14.1^2 + x^2 &= 14.7^2 \\ 196.81 + x^2 &= 216.09 \\ -196.81 \quad -196.81 \\ \hline \sqrt{x^2} &= \sqrt{17.28} \\ x &= 4.2 \text{ yd} \end{aligned}$$

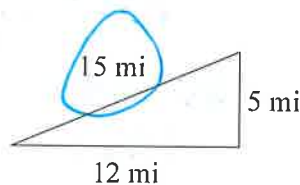
State if each triangle is acute, obtuse, or right.

55)



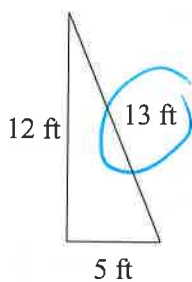
$$\begin{aligned} c^2 &\square a^2 + b^2 \\ 13^2 &\square 9^2 + 12^2 \\ 169 &\square 81 + 144 \\ 169 &\square 225 \\ \text{acute} \end{aligned}$$

56)



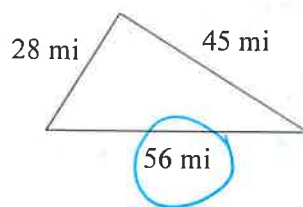
$$\begin{aligned} 15^2 &\square 12^2 + 5^2 \\ 225 &\square 144 + 25 \\ 225 &\square 169 \\ \text{obtuse} \end{aligned}$$

57)



$$\begin{aligned} 13^2 &\square 12^2 + 5^2 \\ 169 &\square 144 + 25 \\ 169 &\square 169 \\ \text{right} \end{aligned}$$

58)



$$\begin{aligned} 56^2 &\square 28^2 + 45^2 \\ 3136 &\square 784 + 2025 \\ 3136 &\square 2809 \\ \text{obtuse} \end{aligned}$$