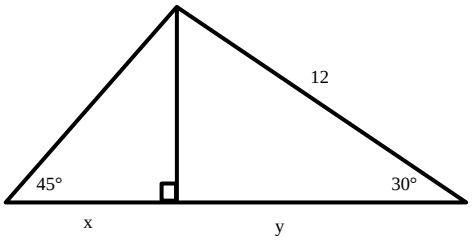
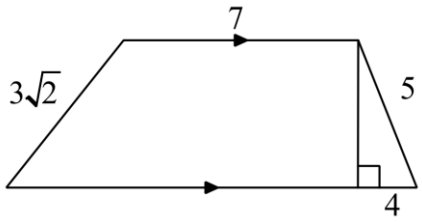
Name_____

1. In the diagram, x and y represent unknown side lengths. What are the length of sides x and y?



2. Find the area of the trapezoid shown.



3. Given $tan\angle A = \frac{3}{4}$, find sin $\angle A$?

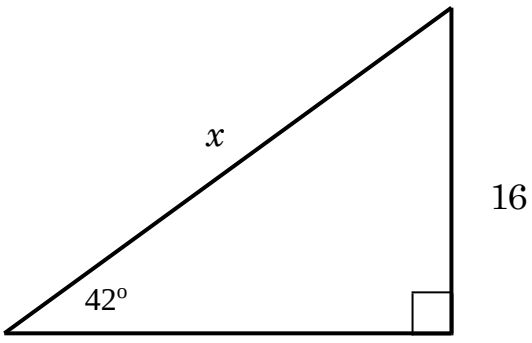
4. What is the value of x in the right triangle?

A. $16 \sin 42°$

B. $\frac{\sin 42°}{16}$

C. $16 \cos 42°$

D. $\frac{16}{\sin 42°}$

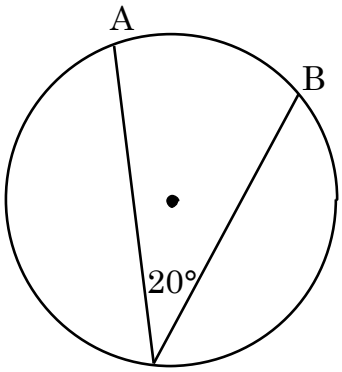


5. Dante is standing at ground level with the base of the Empire State Building in New York City. The angle formed by the ground and a line segment from his position to the top of the building is 39.4°. The height of the Empire State Building is 1472 feet. Find the distance that he is standing from the base of the Empire State Building to the nearest foot.

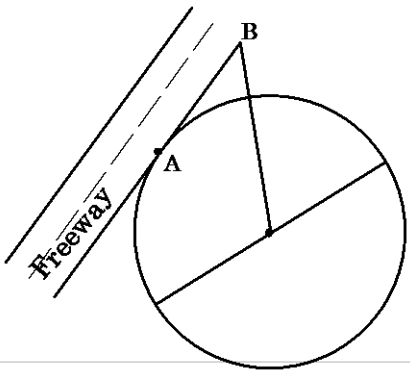
6. The diameter of a circular pizza pan is 18-inches. Three-fourths of the pizza is eaten by your friends. What is the approximate area of the pizza pan that is covered by the remaining pizza?

7. A circle has an arc with length of 12 feet. The central angle formed is 40°. What is the area of the sector, in terms of pi? (Hint: find the radius first.)

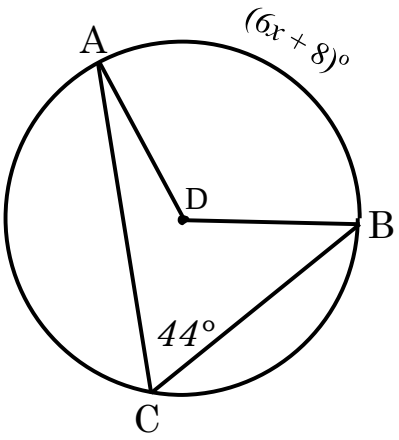
8. What is the length of the minor arc $\widehat{AB}$ in the circle with a radius of 36 cm ?



9. A freeway runs tangent to a circular lake. The distance from point B to the center of the lake is 170 miles. The distance from Point A to Point B on the freeway is 80 miles. What is the diameter of the lake?



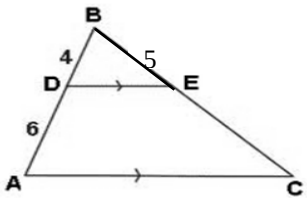
10. Given $AC = BC$ and $\angle ADB$ is a central angle, what is the value of x and $\widehat{BC}$?



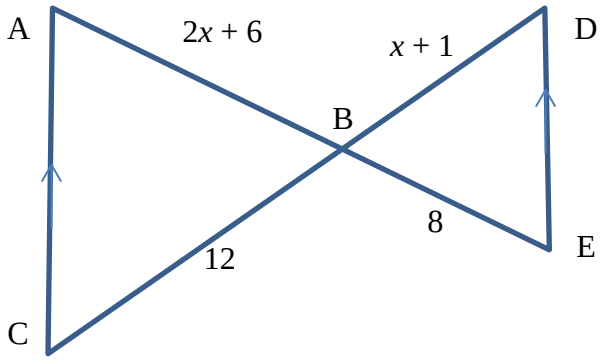
11. A hill has a constant slope of $\frac{2}{7}$. Find the angle of elevation of the hill.

12. Given $m\angle A = (3x + 6)°$ and $m\angle B = (7x + 14)°$, what is the $m\angle C$ in rhombus $ABCD$?

13. Find the length of BC.

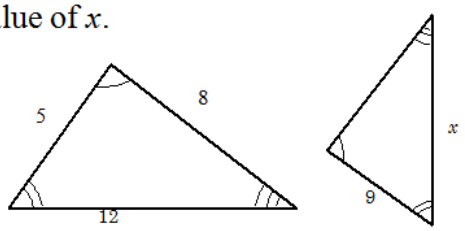


14. Find AB.

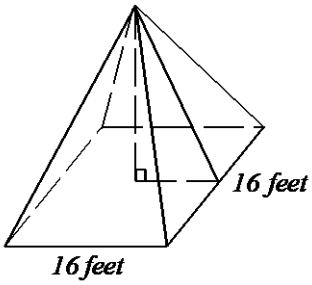


15. Find the value of x.

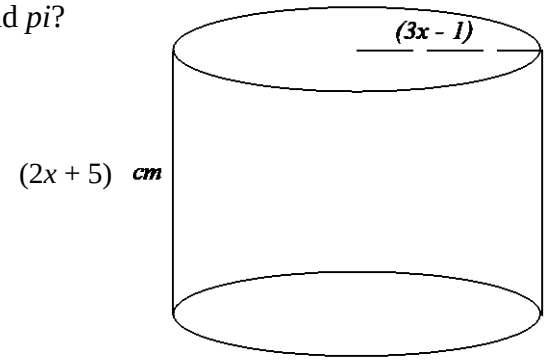
(A) 3.75
(B) 6.67
(C) 19.5
(D) 21.6



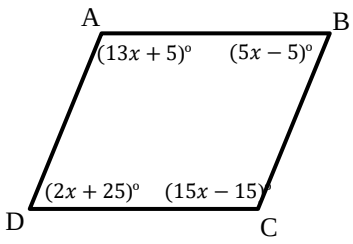
16. What is the volume of the square pyramid? The height of the pyramid is 8 feet



17. What is the volume of the cylinder in terms of x and pi?

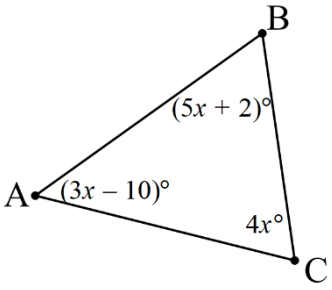


18. Given Quadrilateral ABCD, find the measure of each angle.

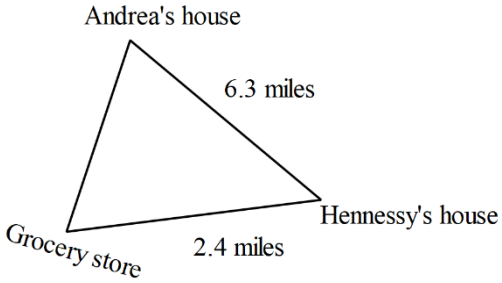


19. Consider the following triangle. Which statements below are true? Choose all that apply.

A) AB > BC
B) AC < BC
C) AC is the longest side.
D) BC is the longest side.
E) BC < AB < AC

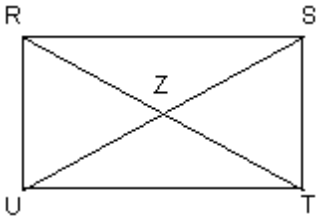


20. Andrea drove 6.3 miles to Hennessy's house and then drove 2.4 miles to the grocery store before returning home, as shown in the diagram. What is the range of the third side?

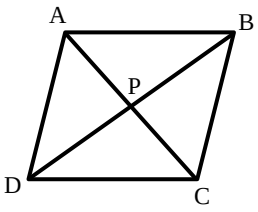


A) between 3.9 miles and 8.7 miles
B) between 8.7 miles and 12.6 miles
C) between 12.6 miles and 21.3 miles
D) between 12.6 miles and 17.4 miles

21. Given that RSTU is a rectangle. If RT= 6x + 20 and ZS = 6x – 8, find UZ



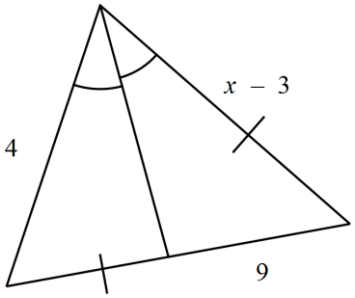
22. Quadrilateral ABCD is a rhombus, If $AP = 3x - 1$ and $PC = x + 9$, Find AC.



23. What is the measure of JF in Parallelogram *FGHJ* ?

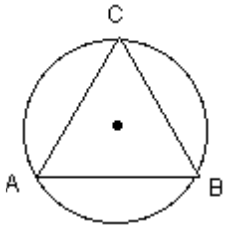
FG $= 2x - 8$
GH $= 4x + 3$
$m\angle F = 52°$
$m\angle H = (3x + 10)°$

24. Find x.

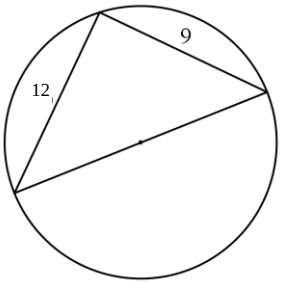


25. Classify a triangle with sides of length 5, $11\sqrt{2}$, and 15 as acute, right, or obtuse.

26. Chords $\overline{AB}, \overline{BC}, and\ \overline{CA}$ are equidistant from the center of the circle. Find the measure of major arc ACB.



27. Find the circumference of the circle shown. Exact answer only.



28. Find the radius of a sphere whose volume is $972\pi\ in^3$.

Answers:

1) $x = 6, y = 6\sqrt{3}$ 2) $\frac{63}{2}u^2$ 3) $\frac{3}{5}$ 4) D 5) 1792 ft 6) $\frac{81}{4}\pi\ in^2$ 7) $\frac{324}{\pi}ft^2$
8) $8\pi\ cm$ 9) 300 mi 10) $x = \frac{40}{3}$, $m\overset{\frown}{BC} = 136°$ 11) 15.95° 12) 54° 13) $\frac{25}{2}$
14) 16 15) D 16) $\frac{2048}{3}ft^3$ 17) $(18x^3 + 33x^2 – 28x + 15)\pi$
18) $m\angle A = 135, m\angle B = 45, m\angle C = 135, m\angle D = 45$ 19) A, C. E 20) A 21) $UZ = 28$
22) 28 23) 59 24) 9 25) acute 26) 240° 27) $C = 15\pi$ 28) 9 in