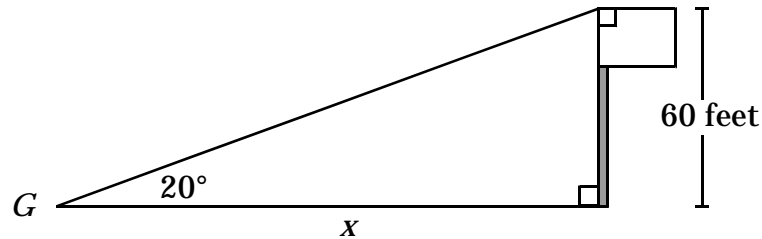


1. The angle of elevation from point G on the ground to the top of a flagpole is 20° . The height of the flagpole is 60 feet.



Which equation could find the distance from point G to the base of the flagpole?

- A $\sin 20^\circ = \frac{x}{60}$
- B $\sin 20^\circ = \frac{60}{x}$
- C $\tan 20^\circ = \frac{60}{x}$
- D $\tan 20^\circ = \frac{x}{60}$
-
2. A mountain climber stands on level ground 300 m from the base of a cliff. The angle of elevation to the top of the cliff is 58° . What is the *approximate* height of the cliff?
- A 566 m
- B 480 m
- C 354 m
- D 187 m

3. A 20-foot ladder is leaning against a wall. The foot of the ladder is 7 feet from the base of the wall. What is the *approximate* measure of the angle the ladder forms with the ground?

A 70.7°
B 69.5°
C 20.5°
D 19.3°

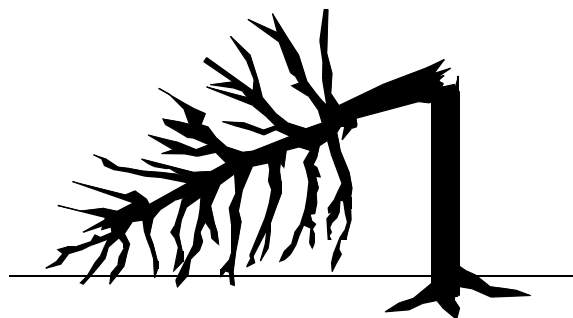
4. A ladder is leaning against the side of a building. The ladder is 30 feet long, and the angle between the ladder and the building is 15° . *About* how far is the foot of the ladder from the building?

A 7.76 feet
B 8.04 feet
C 18.37 feet
D 28.98 feet

5. Susan is making a small cone out of paper. The cone has a radius of 13.2 cm, and the angle between the lateral surface and the base is 38.6° . The formula for the lateral area, s , of a cone is $s = \pi rl$, where r is the radius and l is the slant height. What is the cone's *approximate* lateral area?

A 340 cm²
B 430 cm²
C 700 cm²
D 880 cm²

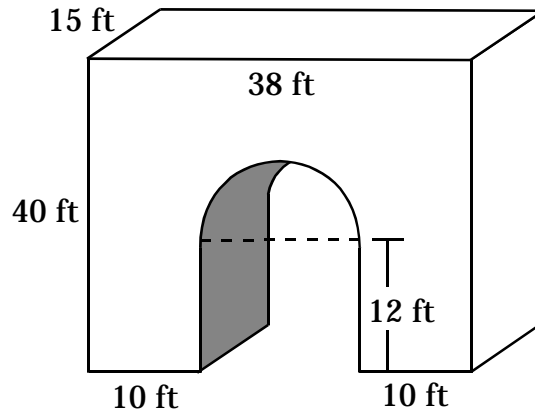
6. A dead tree was struck by lightning, causing it to fall over at a point 10 ft up from its base.



If the fallen treetop forms a 40° angle with the ground, *about* how tall was the tree originally?

A 13 ft
B 16 ft
C 23 ft
D 26 ft

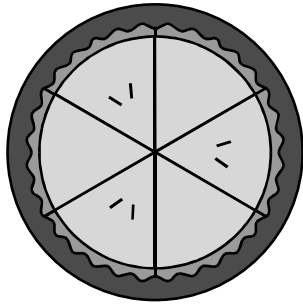
7. A rectangular prism is 40 ft by 38 ft by 15 ft. Shown below is the prism with a half cylinder removed.



Approximately what volume of the original prism remains?

- A 22,800 cubic feet
- B 19,792 cubic feet
- C 19,560 cubic feet
- D 17,651 cubic feet

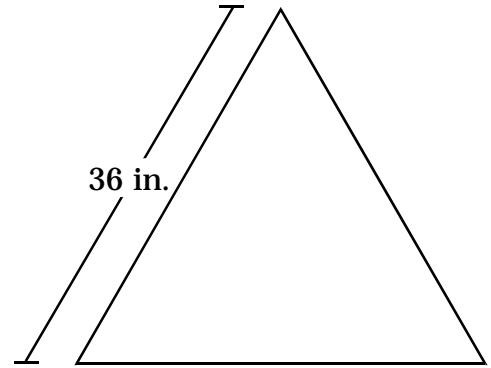
8. An apple pie is cut into six equal slices as shown below.



If the diameter of the pie is ten inches, what is the **approximate** arc length of one slice of pie?

- A 1.67 in.
- B 3.14 in.
- C 5.24 in.
- D 13.08 in.

9. A sign is shaped like an equilateral triangle.



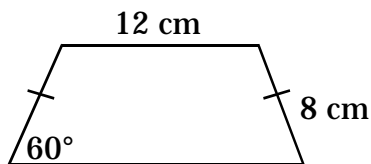
If one side of the sign is 36 inches, what is the **approximate** area of the sign?

- A 1,296 in.²
- B 648 in.²
- C 561 in.²
- D 108 in.²

10. An inflated round balloon with radius $r = 50$ centimeters holds approximately 523,600 cubic centimeters of air. When the balloon is contracted such that the radius is $\frac{2}{3}$ the original size, what is the *approximate* volume of the partially deflated balloon?

- A $1.94 \times 10^4 \text{ cm}^3$
B $1.55 \times 10^5 \text{ cm}^3$
C $1.75 \times 10^5 \text{ cm}^3$
D $3.49 \times 10^5 \text{ cm}^3$

11. What is the *approximate* area of the trapezoid?



- A 83 cm^2
B 110 cm^2
C 128 cm^2
D 192 cm^2

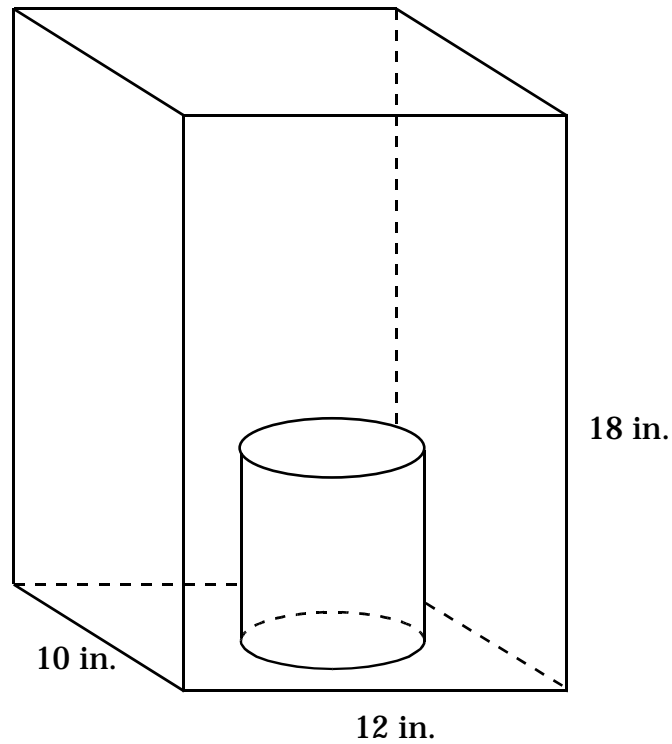
12. What is the *approximate* distance between the points (750, 900, 1,500) and (950, 800, 550)?

- A 976 units
B 1,025 units
C 2,062 units
D 952,500 units

13. What is the ratio of the surface areas of two spheres with volumes of 64 cm^3 and 125 cm^3 ?

- A 4 : 5
B 8 : 10
C 16 : 25
D 64 : 125

14. A cylinder with a height of 6 inches and a radius of 3 inches is inside a rectangular prism, as shown below.



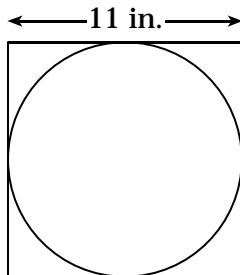
A point inside the rectangular prism will be chosen randomly. What is the probability that the point will also be inside the cylinder?

- A 5.2%
- B 7.9%
- C 15.7%
- D 23.6%

15. A point is randomly selected on \overline{XY} . What is the probability that it will be closer to the midpoint of \overline{XY} than to either X or Y ?

- A $\frac{1}{4}$
 B $\frac{1}{3}$
 C $\frac{1}{2}$
 D $\frac{3}{4}$

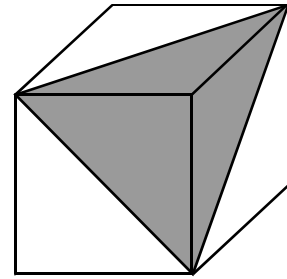
16. A circle is inscribed in a square, as shown below.



If a point is randomly chosen inside the square, what is the *approximate* chance that the point lies outside the circle?

- A 21%
 B 27%
 C 73%
 D 79%

17. A cube is painted as shown. The three faces that are not seen are not painted.



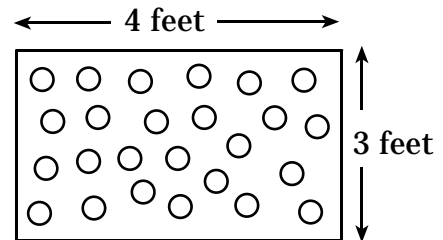
If a point on the surface of the cube is randomly chosen, what is the probability that it will lie in the painted area?

- A $\frac{1}{4}$
 B $\frac{1}{3}$
 C $\frac{3}{8}$
 D $\frac{1}{2}$

18. A cube with edges 10 cm long is painted red. It is cut into smaller cubes with edges 2 cm long that are placed into a bag. One small cube is pulled out of the bag without looking. What is the probability of pulling out a cube with three of its faces painted red?

- A $\frac{4}{125}$
- B $\frac{8}{125}$
- C $\frac{2}{25}$
- D $\frac{12}{125}$

19. To win a carnival game, Keisha must throw a dart and hit one of 25 circles in a dart board that is 4 feet by 3 feet. The diameter of each circle is 4 inches.



Approximately what is the probability that a randomly thrown dart that hits the board would also hit a circle?

- A 18%
- B 26%
- C 63%
- D 73%

End of Goal 1 Sample Items

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Geometry Goal 1

Sample Items Key Report

- 10 Objective: 1.02**
Use length, area, and volume of geometric figures to solve problems. Include arc length, area of sectors of circles; lateral area, surface area, and volume of three-dimensional figures; and perimeter, area, and volume of composite figures.
Thinking Skill: Analyzing Correct Answer: B
- 11 Objective: 1.02**
Use length, area, and volume of geometric figures to solve problems. Include arc length, area of sectors of circles; lateral area, surface area, and volume of three-dimensional figures; and perimeter, area, and volume of composite figures.
Thinking Skill: Applying Correct Answer: B
- 12 Objective: 1.02**
Use length, area, and volume of geometric figures to solve problems. Include arc length, area of sectors of circles; lateral area, surface area, and volume of three-dimensional figures; and perimeter, area, and volume of composite figures.
Thinking Skill: Applying Correct Answer: A
- 13 Objective: 1.02**
Use length, area, and volume of geometric figures to solve problems. Include arc length, area of sectors of circles; lateral area, surface area, and volume of three-dimensional figures; and perimeter, area, and volume of composite figures.
Thinking Skill: Applying Correct Answer: C
- 14 Objective: 1.03**
Use length, area, and volume to model and solve problems involving probability.
Thinking Skill: Applying Correct Answer: B
- 15 Objective: 1.03**
Use length, area, and volume to model and solve problems involving probability.
Thinking Skill: Analyzing Correct Answer: C
- 16 Objective: 1.03**
Use length, area, and volume to model and solve problems involving probability.
Thinking Skill: Generating Correct Answer: A
- 17 Objective: 1.03**
Use length, area, and volume to model and solve problems involving probability.
Thinking Skill: Integrating Correct Answer: A
- 18 Objective: 1.03**
Use length, area, and volume to model and solve problems involving probability.
Thinking Skill: Integrating Correct Answer: B
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