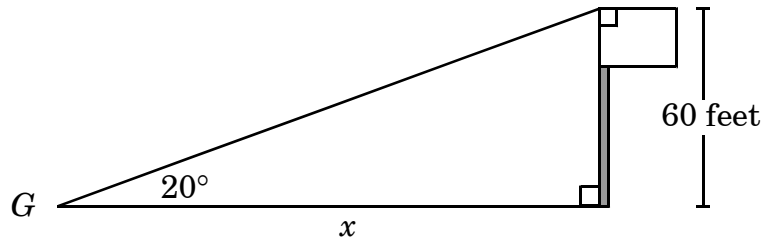1.   The angle of elevation from point G on the ground to the top of a flagpole is 20°. The height of the flagpole is 60 feet.

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

A $\sin 20° = \dfrac{x}{60}$

B $\sin 20° = \dfrac{60}{x}$

C $\tan 20° = \dfrac{60}{x}$

D $\tan 20° = \dfrac{x}{60}$

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

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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 $s = \pi r l$, where r is the radius and l is the slant height. What is the cone's ***approximate*** lateral area?

    A   340 cm^2

    B   430 cm^2

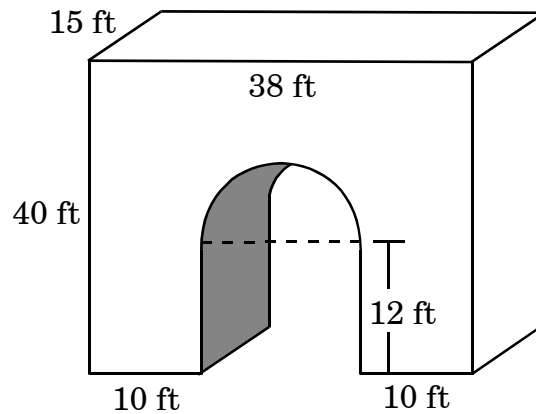   C   700 cm^2

    D   880 cm^2

6. A dead tree was struck by lightning, causing it to fall over at a point 10 ft up from its base.
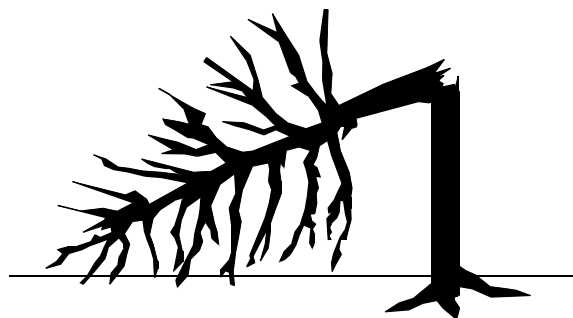
    If the fallen treetop forms a 40° angle with the ground, ***about*** how tall was the tree originally?

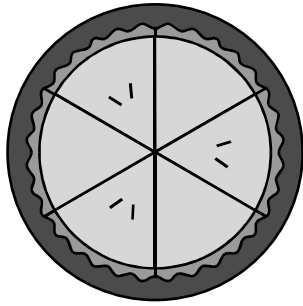   A   13 ft

    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.

15 ft

38 ft

40 ft

12 ft

10 ft   10 ft

Approximately what volume of the original prism remains?

A   22,800 cubic feet

B   19,792 cubic feet
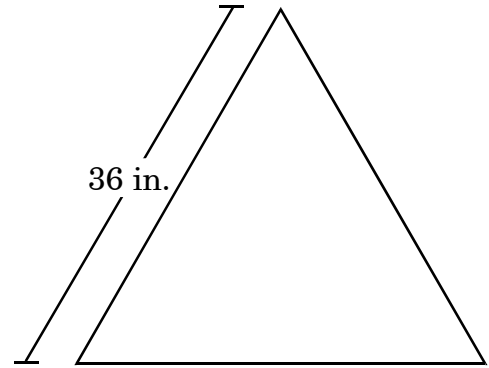
C   19,560 cubic feet

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.


36 in.

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 1.94×10^4 cm^3

    B 1.55×10^5 cm^3

    C 1.75×10^5 cm^3

    D 3.49×10^5 cm^3

11. What is the **approximate** area of the trapezoid?
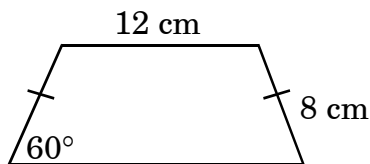
    A   83 cm^2

    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.


18 in.

10 in.

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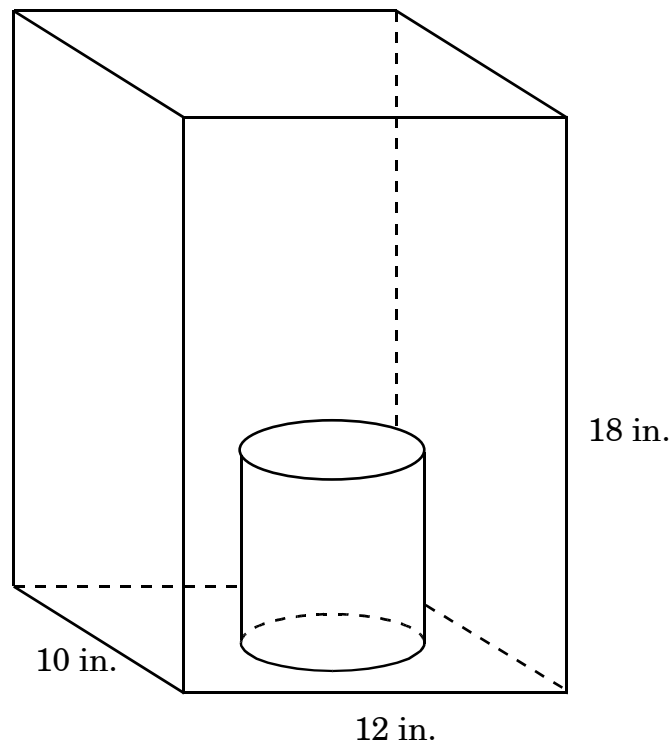
A point inside the rectangular prism will be chosen randomly. What is the probability that the point will also be inside the cylinder?

A   5.2%

B   7.9%

C   15.7%

D   23.6%

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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.

   ←——11 in.——→
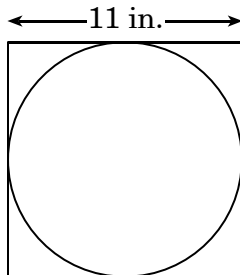
   If a point is randomly chosen inside the square, what is the **approximate** chance that the point lies outside the circle?

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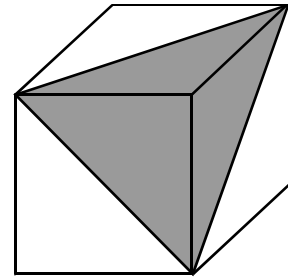
   If a point on the surface of the cube is randomly chosen, what is the probability that it will lie in the painted area?

   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 $\dfrac{4}{125}$

  B $\dfrac{8}{125}$

  C $\dfrac{2}{25}$

  D $\dfrac{12}{125}$

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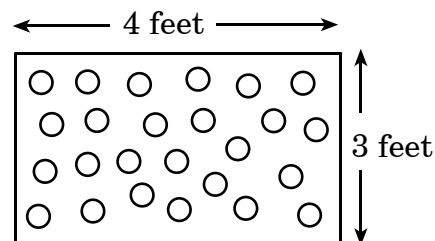
  Approximately what is the probability that a randomly thrown dart that hits the board would also hit a circle?

  A   18%

  B   26%

  C   63%

  D   73%

End of Goal 1 Sample Items

Geometry Goal 1
Sample Items Key Report

1   **Objective:**   **1.01**
Use the trignonometric ratios to model and solve problems involving right triangles.
Thinking Skill: Analyzing   **Correct Answer:**   C

2   **Objective:**   **1.01**
Use the trignonometric ratios to model and solve problems involving right triangles.
Thinking Skill: Applying   **Correct Answer:**   B

3   **Objective:**   **1.01**
Use the trignonometric ratios to model and solve problems involving right triangles.
Thinking Skill: Applying   **Correct Answer:**   B

4   **Objective:**   **1.01**
Use the trignonometric ratios to model and solve problems involving right triangles.
Thinking Skill: Applying   **Correct Answer:**   A

5   **Objective:**   **1.01**
Use the trignonometric ratios to model and solve problems involving right triangles.
Thinking Skill: Integrating   **Correct Answer:**   C

6   **Objective:**   **1.01**
Use the trignonometric ratios to model and solve problems involving right triangles.
Thinking Skill: Analyzing   **Correct Answer:**   D

7   **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:**   D

8   **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:**   C

9   **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

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

19   **Objective:**   **1.03**
Use length, area, and volume to model and solve problems involving probability.
Thinking Skill: Analyzing   **Correct Answer:**   A

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