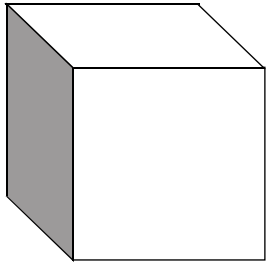


1.

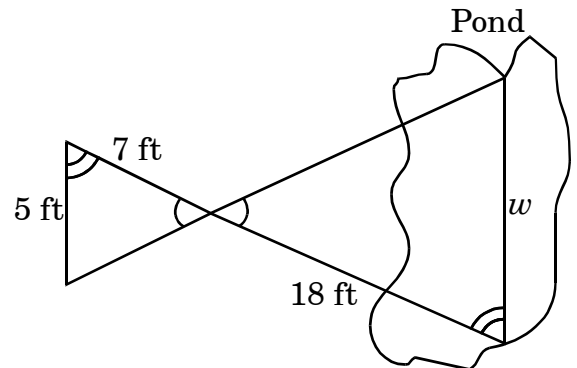


If the side measurement of this cube is tripled, what is the ratio of the surface area of the original cube to the surface area of the larger one?

- A 1:3
- B 1:6
- C 1:9
- D 1:12

2.

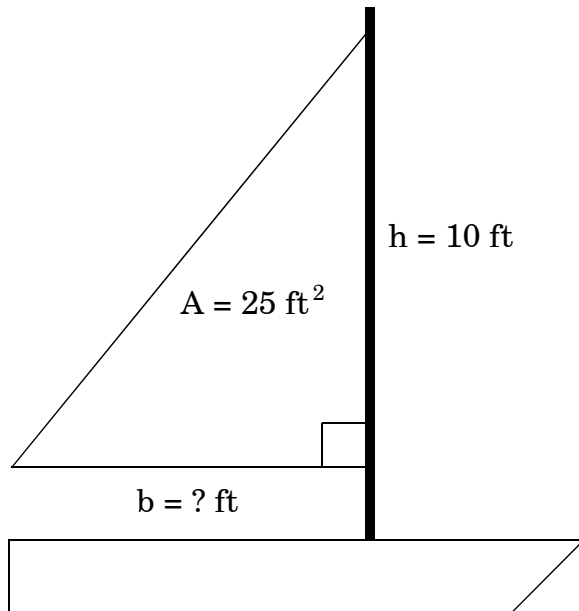
Jake wanted to measure the width of the pond, so he drew this diagram of two similar triangles.



What is the **approximate** width, w , of the pond?

- A 25 feet
 - B 19 feet
 - C 18 feet
 - D 13 feet
3. What is the measure of the larger of two complementary angles if the measure of one angle is five times the measure of the other angle?
- A 15°
 - B 16°
 - C 74°
 - D 75°

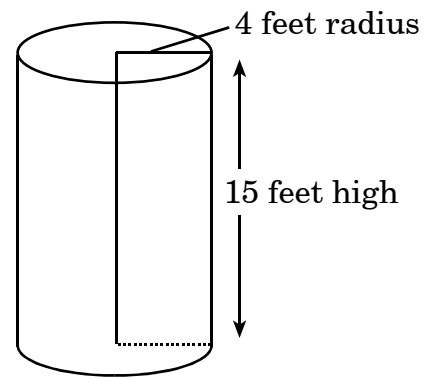
4. John's triangular sail has an area of 25 square feet. The sail's height is 10 feet.



What is the length of the base of the sail?

- A 2.5 ft
- B 5 ft
- C 15 ft
- D 35 ft

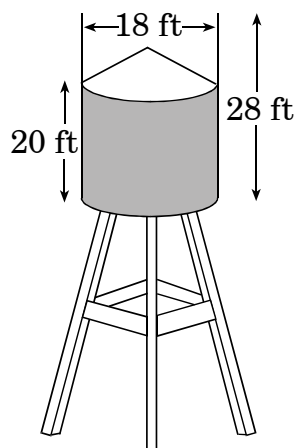
- 5.



What is the **approximate** volume of the water tank to the nearest whole number?

- A 189 cubic feet
 - B 377 cubic feet
 - C 754 cubic feet
 - D 1,508 cubic feet
6. Garrett made a toy box for his younger sister. The inside of the entire toy box, including the lid, is 15 in. wide, 30 in. long, and 12 in. tall. Garrett wants to line the inside, including the lid, with purple cloth. How many square feet of cloth should he buy?
- A 3.125 ft^2
 - B 8.125 ft^2
 - C 13.75 ft^2
 - D 28.5 ft^2

7. Mr. Gellar needs to paint the shaded part of the water tower.



Water Tower

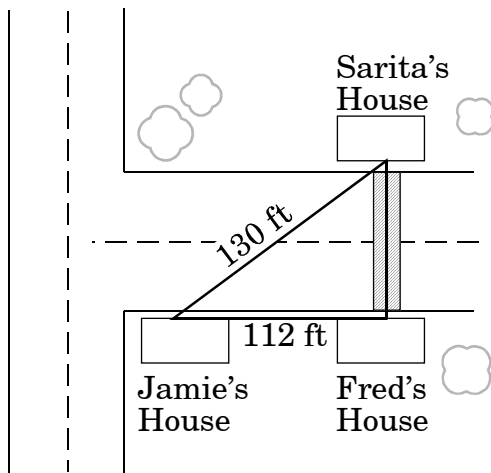
If a gallon of paint will cover 200 square feet, what is the **least** number of gallons of paint needed to complete the job?

- A 5
- B 6
- C 7
- D 8
-
8. Jaden's new toy chest is in the shape of a rectangular pyramid. The dimensions of the base are 3 ft 9 in. and 4 ft 6 in. The height is 4 ft 3 in. What is the **approximate** volume of the pyramid?
- A 23.9 ft^3
- B 25.7 ft^3
- C 35.9 ft^3
- D 38.6 ft^3
9. What is the **approximate** volume of a cone with a radius of 6 inches and a height of 9 inches?
- A 113.04 in.^3
- B 339.29 in.^3
- C 1017.88 in.^3
- D 1356.48 in.^3

10. Rae built a gate for her backyard. The height of the gate is 3 feet and the width is 5 feet. **About** how long is its support piece that goes along the diagonal?

- A 34 ft
- B 8 ft
- C 6 ft
- D 3 ft

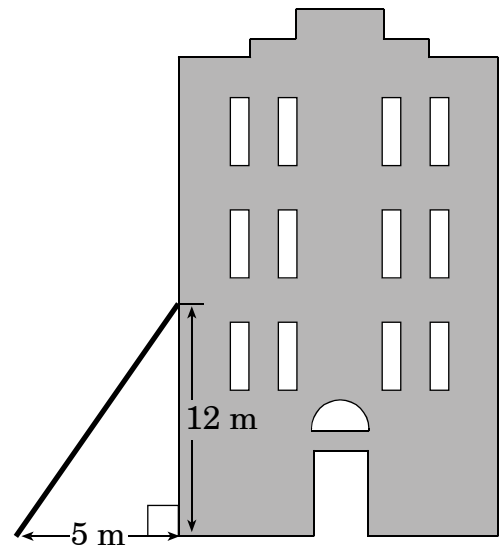
11. Jamie and Fred are meeting Sarita at her house. Jamie must use the crosswalk in front of Fred's house to cross the street.



What is the total distance Jamie must walk?

- A 66 ft
- B 130 ft
- C 178 ft
- D 199 ft

12. A ladder leans against the side of a building. The base of the ladder is 5 meters from the building, and the top is 12 meters above the ground.

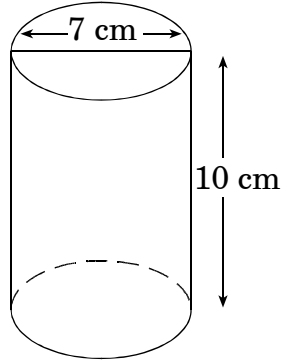


What is the length of the ladder?

- A 11 meters
- B 13 meters
- C 17 meters
- D 169 meters

13. A square pyramid has a volume of 32 cubic units. What would be the volume if the dimensions of the square base were doubled?
- A The volume would be two times the original.
 - B The volume would be three times the original.
 - C The volume would be four times the original.
 - D The volume would be eight times the original.
14. If the height of a cylinder was tripled, but the area of the base remained the same, what would happen to the volume?
- A The volume would double.
 - B The volume would triple.
 - C The volume would be four times greater.
 - D The volume would be nine times greater.
15. Juan built a square pyramid in the sand. He built a second pyramid with the same size base that was one third as tall as the first one. What would be the volume of the second pyramid?
- A The volume would be $\frac{1}{9}$ as much as the first pyramid.
 - B The volume would be $\frac{1}{3}$ as much as the first pyramid.
 - C The volume would be 3 times as much as the first pyramid.
 - D The volume would be 9 times as much as the first pyramid.

16. The diagram below shows a company's current packaging of its plant food.



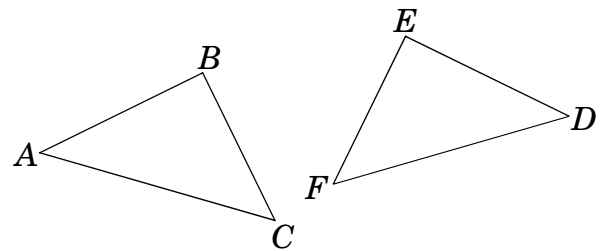
If the company doubles the radius of its current packaging, what effect will this change have on the volume of the container?

- A The volume will be one and a half times the original packaging volume.
- B The volume will be twice the original packaging volume.
- C The volume will be three times the original packaging volume.
- D The volume will be four times the original packaging volume.

17. At noon, the shadow of a flagpole is 19 feet long. At the same time, the shadow of a 12-foot wall is 4 feet long. What is the height of the flagpole?

- A 48 feet
- B 57 feet
- C 62 feet
- D 75 feet

18. $\triangle ABC \cong \triangle DEF$ with a right angle at B and $\angle C = 42^\circ$.



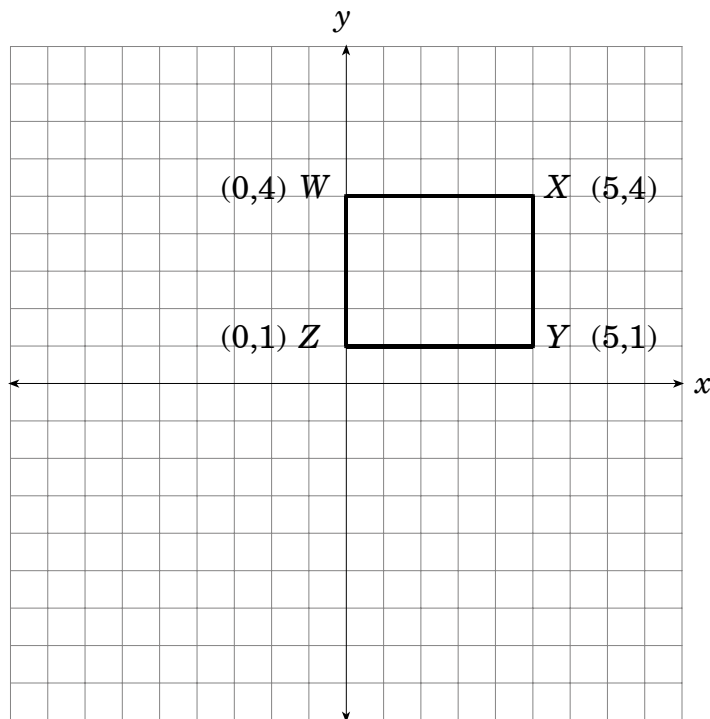
What is the measure of $\angle D$?

- A 42°
- B 48°
- C 58°
- D 90°

19. A copying machine reduces a 12-inch line segment to 10.5 inches. At this setting, what would a 16-inch line segment become?

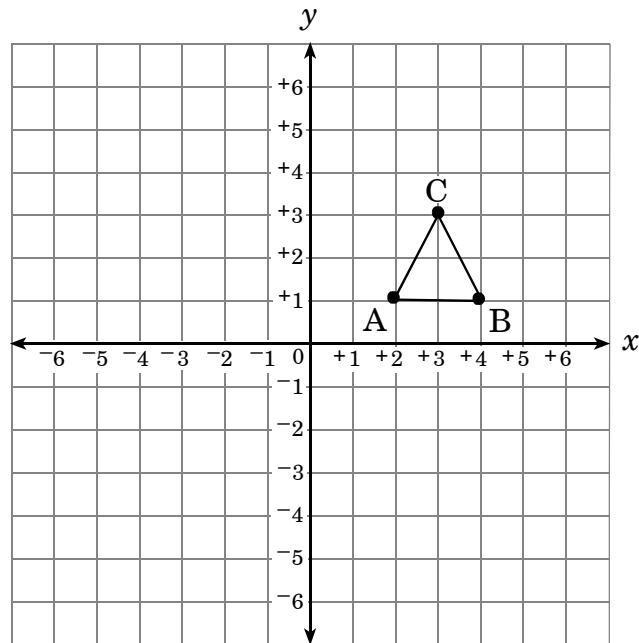
- A 12 inches
- B 14 inches
- C 16 inches
- D 18 inches

20. If $WXYZ$ were rotated 180° about point Z , what would be the coordinates of point Y' ?



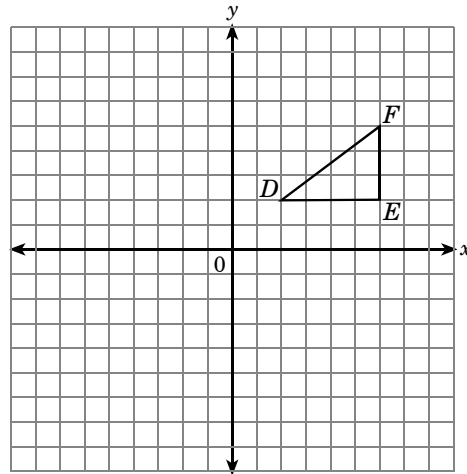
- A $(-5, 1)$
- B $(5, 1)$
- C $(-5, -1)$
- D $(5, -1)$

21. If triangle ABC were rotated 90° counterclockwise about the origin, what would be the coordinates of B' ?

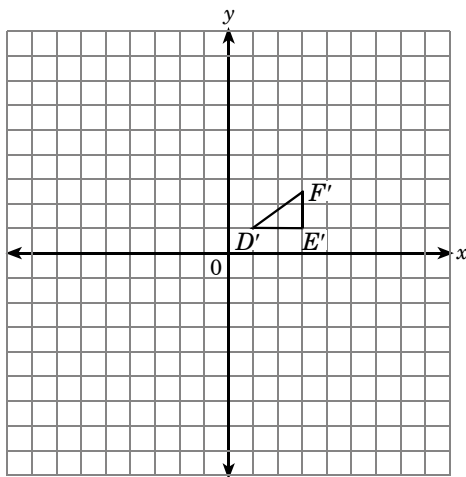


- A $(4, 1)$
B $(0, 4)$
C $(-1, -4)$
D $(-1, 4)$

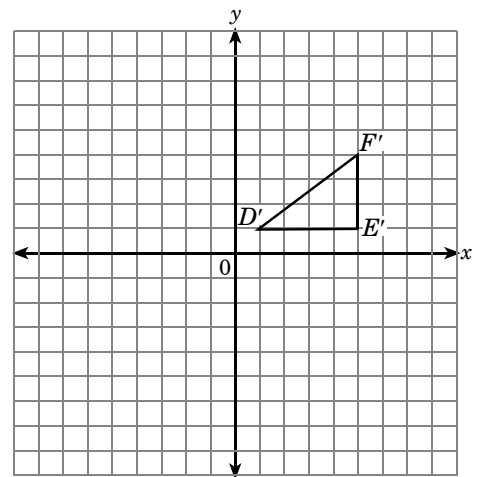
22. Given $\triangle DEF$, which figure illustrates a dilation with a scale factor of $\frac{1}{2}$?



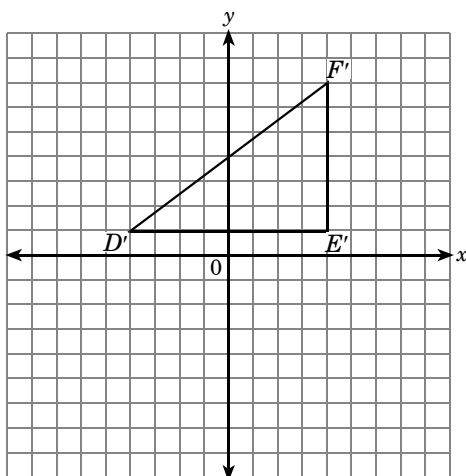
A



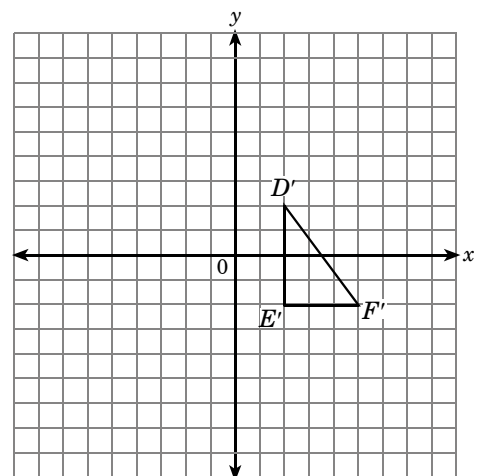
B



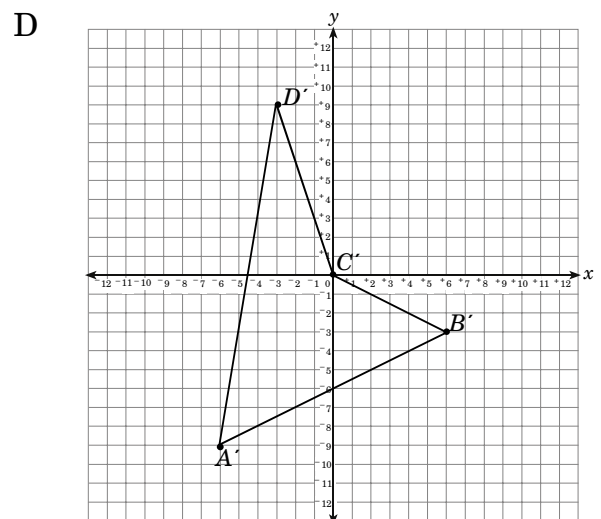
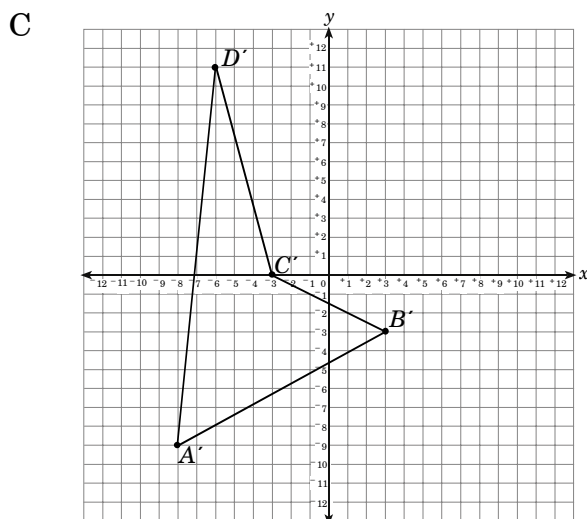
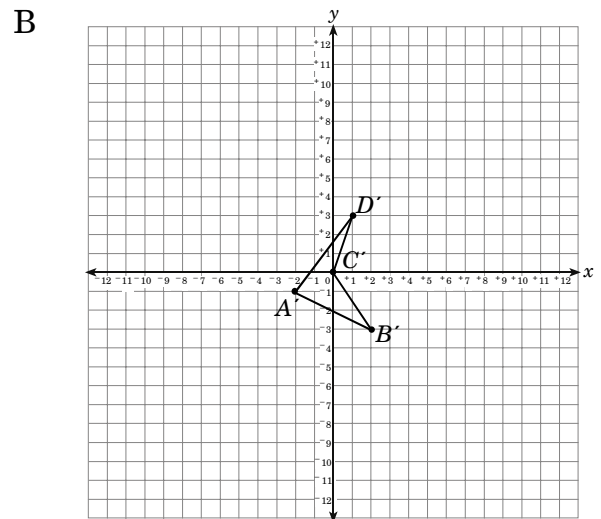
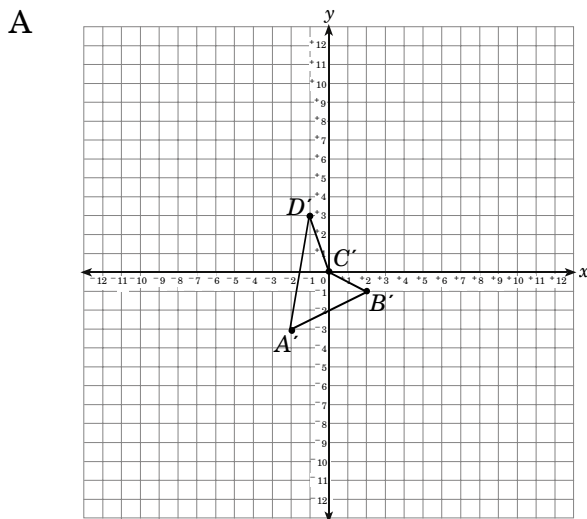
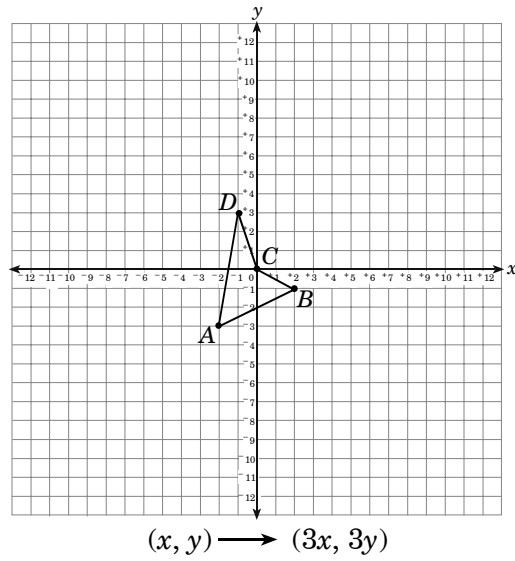
C



D



23. If quadrilateral $ABCD$ is dilated with a scale factor of 3, which of the following would be the result?



24. For a classroom assignment, Ashley needs to estimate the mass of her cheese sandwich. Which would be the ***most reasonable*** estimate?
- A 200 grams
 - B 3 kilograms
 - C 27 centigrams
 - D 300 milligrams

End of Goal 2 Sample Items

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Answers to EOG Mathematics Grade 8 Sample Items

Goal 2

1. **Objective 2.01**
Use geometric concepts and modeling to interpret and solve problems.
Thinking Skill: Applying **Correct Answer:** C
2. **Objective 2.01**
Use geometric concepts and modeling to interpret and solve problems.
Thinking Skill: Integrating **Correct Answer:** D
3. **Objective 2.01**
Use geometric concepts and modeling to interpret and solve problems.
Thinking Skill: Applying **Correct Answer:** D
4. **Objective 2.01**
Use geometric concepts and modeling to interpret and solve problems.
Thinking Skill: Applying **Correct Answer:** B
5. **Objective 2.01**
Use geometric concepts and modeling to interpret and solve problems.
Thinking Skill: Applying **Correct Answer:** C
6. **Objective 2.03**
Find the surface area of rectangular solids and cylinders.
Thinking Skill: Integrating **Correct Answer:** C
7. **Objective 2.03**
Find the surface area of rectangular solids and cylinders.
Thinking Skill: Integrating **Correct Answer:** B
8. **Objective 2.05**
Find the volume of prisms, cylinders, pyramids, and cones, with and without models.
Thinking Skill: Applying **Correct Answer:** A
9. **Objective 2.05**
Find the volume of prisms, cylinders, pyramids, and cones, with and without models.
Thinking Skill: Applying **Correct Answer:** B
10. **Objective 2.06**
Use the Pythagorean Theorem to solve problems.
Thinking Skill: Applying **Correct Answer:** C

Answers to EOG Mathematics Grade 8 Sample Items

Goal 2

11. Objective 2.06

Use the Pythagorean Theorem to solve problems.

Thinking Skill: Applying **Correct Answer:** C

12. Objective 2.06

Use the Pythagorean Theorem to solve problems.

Thinking Skill: Applying **Correct Answer:** B

13. Objective 2.07

Determine the effect on the volume of solid figures when one or more dimension is changed.

Thinking Skill: Analyzing **Correct Answer:** C

14. Objective 2.07

Determine the effect on the volume of solid figures when one or more dimension is changed.

Thinking Skill: Analyzing **Correct Answer:** B

15. Objective 2.07

Determine the effect on the volume of solid figures when one or more dimension is changed.

Thinking Skill: Analyzing **Correct Answer:** B

16. Objective 2.07

Determine the effect on the volume of solid figures when one or more dimension is changed.

Thinking Skill: Analyzing **Correct Answer:** D

17. Objective 2.08

Solve problems related to similar and congruent figures.

Thinking Skill: Applying **Correct Answer:** B

18. Objective 2.08

Solve problems related to similar and congruent figures.

Thinking Skill: Applying **Correct Answer:** B

19. Objective 2.08

Solve problems related to similar and congruent figures.

Thinking Skill: Applying **Correct Answer:** B

Answers to EOG Mathematics Grade 8 Sample Items

Goal 2

20. Objective 2.09

Locate, give the coordinates of, and graph plane figures which are the results of rotations (multiples of 90 degrees). Graph plane figures which are similar to a given figure (dilations).

Thinking Skill: Analyzing

Correct Answer: A

21. Objective 2.09

Locate, give the coordinates of, and graph plane figures which are the results of rotations (multiples of 90 degrees). Graph plane figures which are similar to a given figure (dilations).

Thinking Skill: Analyzing

Correct Answer: D

22. Objective 2.09

Locate, give the coordinates of, and graph plane figures which are the results of rotations (multiples of 90 degrees). Graph plane figures which are similar to a given figure (dilations).

Thinking Skill: Analyzing

Correct Answer: A

23. Objective 2.09

Locate, give the coordinates of, and graph plane figures which are the results of rotations (multiples of 90 degrees). Graph plane figures which are similar to a given figure (dilations).

Thinking Skill: Analyzing

Correct Answer: D

24. Objective 2.12

Select appropriate units and tools for measurement tasks within problem-solving situations; determine precision; check for reasonableness of results.

Thinking Skill: Analyzing

Correct Answer: A