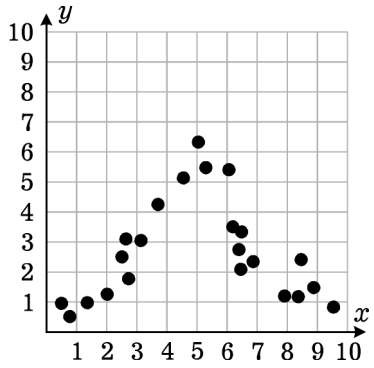
SC Math Standards: Geometry with Statistics - Sample Questions

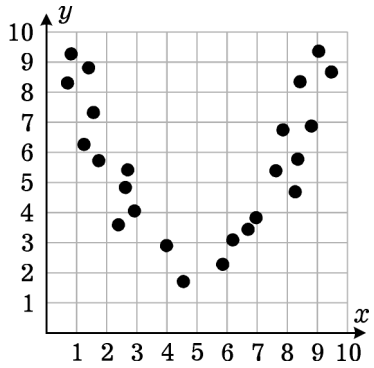
Name: _____ **Date:** _____

1. Below are four scatterplots. Which of them suggests a linear relationship between x and y?

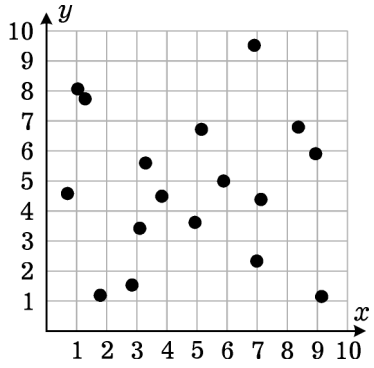
A.



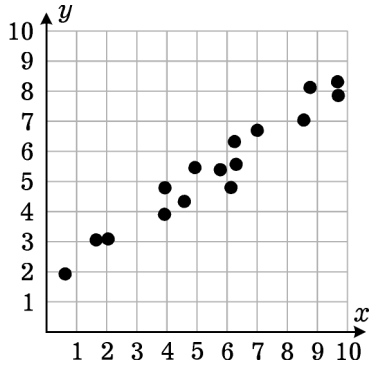
B.



C.



D.

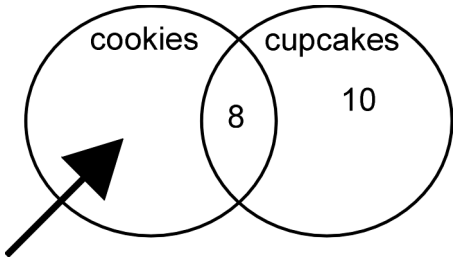


2. Victor asked his classmates if they like cookies or cupcakes and recorded the information in a table.

Dessert

Cookies	Cupcakes	Both	Neither
6	10	8	3

Victor drew a diagram to display the data but left out some information.



What number belongs where the arrow is pointing?

A. 3 B. 8 C. 6 D. 10

3. In a study to determine the relationship between a person's weekly income and the amount a person spends per week for recreation the following data was obtained.

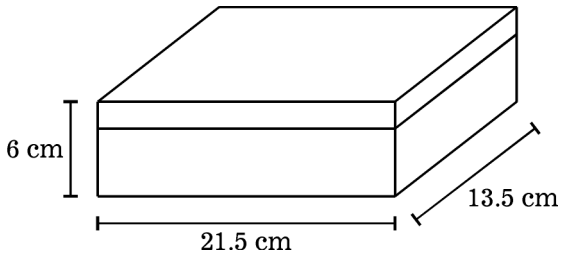
Income	Amount
700	230
500	150
1100	250
1400	120
1500	240

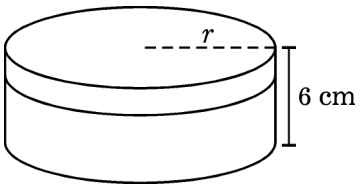
A scatter plot is drawn using Income as the independent variable. What are the mean coordinates?

A. (1240, 198) B. (1420, 126)

C. (1340, 187) D. (1640, 208)

4. KoKo Chocolatiers sells their truffles in rectangular boxes. They are going to start offering circular boxes, too. The rectangular box is made from metal that is 0.3 cm thick. The circular box will be constructed from laminated cardboard that is 0.2 cm thick.





The height of the circular box will be the same as the rectangular box. If the volumes of the two boxes are equal, then what is the radius (r) of the circular box?

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5. How could you show more sleep improves grades?

   A. Survey only those who failed art and history

   B. Collect data regarding time slept and grades

   C. Ask your friends

   D. Take a survey of students' sleep time

6. Determine which of the following statements about prisms are true. Mark all that apply.

   ○ The sides of a prism are always parallelograms.

   ○ A prism has two bases which are congruent polygons.

   ○ The sides of a prism are perpendicular to the bases.

   ○ A prism is a three-dimensional figure with two parallel bases.

7. Identify whether the following situation represents causation: There are a greater number of Highway Patrol officers at a 10–car accident than a 2–car accident. Increased Highway Patrol presence increases the severity of accidents.

   A. yes

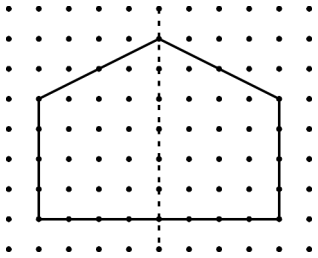
   B. no

   C. this is an example of correlation not causation

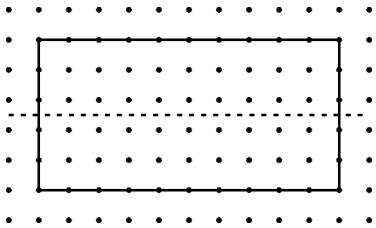
   D. cannot tell

8. Jolo tried to draw a line of symmetry through each figure. Which dashed line is *not* a line of symmetry?

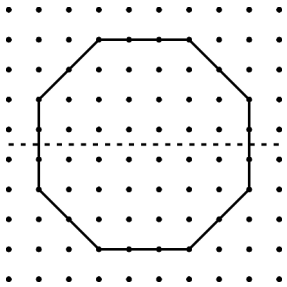
A.



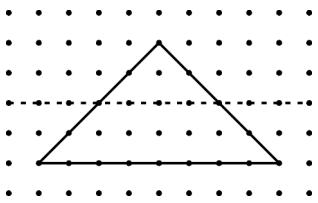
B.



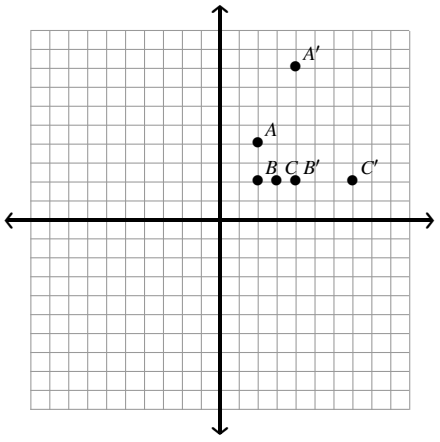
C.



D.



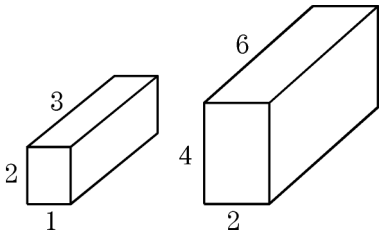
9. $\triangle ABC$ is the original figure and $\triangle A'B'C'$ represents its dilation image. What is the center of dilation?



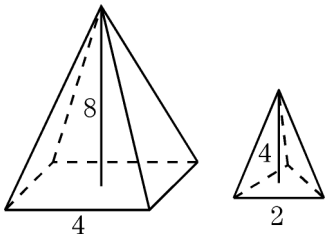
A. $(-2, 1)$ B. $(1, 2)$ C. $(0, 0)$ D. $(2, -1)$

10. Determine which of the following are similar.

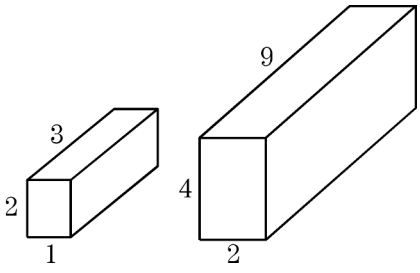
A.



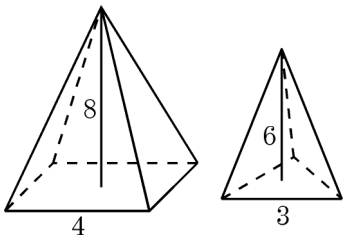
B.



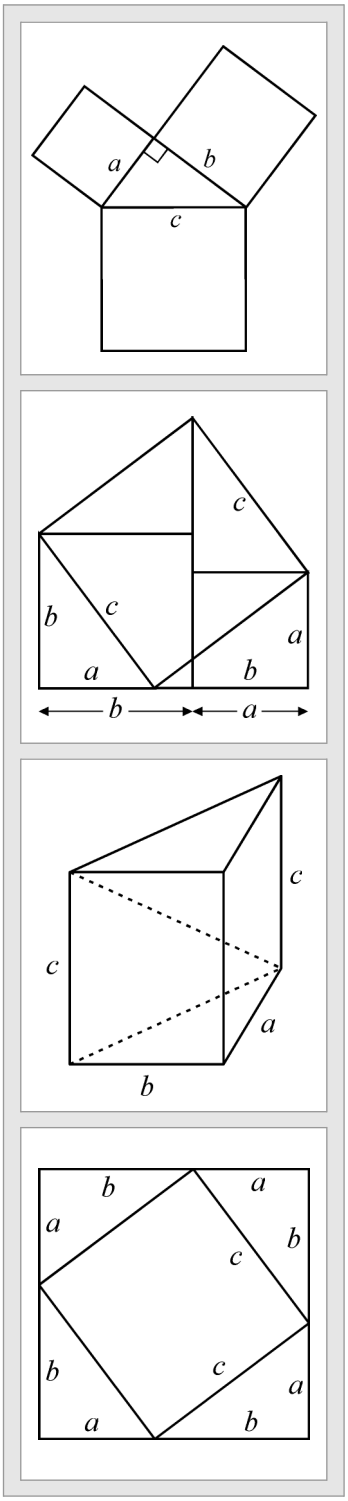
C.



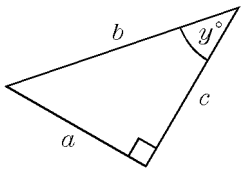
D.



11. Which of the figures are useful for proving the Pythagorean Theorem?



12. Which of the following statements are correct? Select all that apply.



- ○ $\sin y^\circ = \frac{a}{b}$
- ○ $\cos y^\circ = \frac{c}{b}$
- ○ $\tan y^\circ = \frac{a}{c}$
- ○ $\tan(90^\circ - y^\circ) = \frac{a}{c}$
- ○ $c^2 + a^2 = b^2$

13. Which shape, if rotated 120°, will coincide with itself? ("Coincide" means means there's an exact match between the set of points, or one shape will lay perfectly on top of the other.)

A. trapezoid B. equilateral triangle

C. isosceles triangle D. square

14. $\triangle XYZ$ is labeled in a clockwise direction. After a sequence of reflections, R is the image of $\triangle XYZ$.

a) After 5 reflections, what is the orientation of R?

b) When is the orientation of R the same as $\triangle XYZ$?

c) When is the orientation of R *not* the same as $\triangle XYZ$?

15. Tandra constructed $\triangle CAR$ according to these rules:

- $m\angle C = x + 6$
- $m\angle A = 2x + 3$
- $m\angle R = x + 15$
- $\overline{RC}$ is the longest side

In order for Tandra to make $\overline{RC}$ the longest side, which of the following must be true?

A. $x > 3$ B. $x \leq 12$ C. $x > 12$ D. $x > 1$

16. $\triangle ABC$ has coordinates $A = (0, 0)$, $B = (10, 0)$ and $C = (4, 8)$. Select all the angles, if any, that are congruent.

$\angle A$	$\angle B$	$\angle C$

17. Find the square roots:

$\sqrt{400} =$ ☐

$\sqrt{0.49} =$ ☐

$\sqrt{\frac{4}{9}} =$ ☐

$\sqrt{5^{10}} =$ ☐

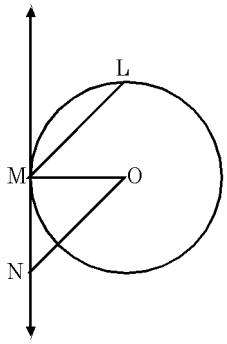
18. Using the figure shown, which line segment could represent a chord of a circle?

A. $\overline{MN}$

B. $\overline{NO}$

C. $\overline{LM}$

D. all of the above



19. It is known that 3% of the population has a certain disease. A test for this disease is 98% accurate (it gives a false positive 2% of the time). If a person tests positive for the disease, what is the probability that the person actually has the disease?

A. ≈ 0.95 B. ≈ 0.92 C. ≈ 0.74 D. ≈ 0.60

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1.
Answer: D
Objective: GS.DPSR.1.1
Points: 1

2.
Answer: C
Objective: GS.DPSR.3.1
Points: 1

3.
Answer: A
Objective: GS.DPSR.1.2
Points: 1

4.
Answer: 9.3 cm
Objective: GS.MGSR.1.1
Points: 1

5.
Answer: B
Objective: GS.DPSR.1.3
Points: 1

6.
Answer: 1,2,4
Objective: GS.MGSR.1.2
Points: 1

7.
Answer: B
Objective: GS.DPSR.2.1
Points: 1

8.
Answer: D
Objective: GS.MGSR.3.1
Points: 1

9.
Answer: B
Objective: GS.MGSR.4.1
Points: 1

10.
Answer: A
Objective: GS.MGSR.4.3
Points: 1

11.
Answer: 1,2,4
Objective: GS.MGSR.6.1
Points: 1

12.
Answer: 1,2,3,5
Objective: GS.MGSR.6.4
Points: 1

13.
Answer: B
Objective: GS.MGSR.2.1
Points: 1

14.
Answer: $\triangle XZY$; even number of reflections; odd number of reflections
Objective: GS.MGSR.2.2
Points: 1

15.
Answer: C
Objective: GS.MGSR.5.2
Points: 1

16.
Answer: 1,3
Objective: GS.PAFR.3.1
Points: 1

17.
Answer: 20,.7,$\frac{2}{3}$,3125
Objective: GS.NR.1.1
Points: 1

18.
Answer: C
Objective: GS.MGSR.7.2
Points: 1

19.
Answer: D
Objective: GS.DPSR.3.3
Points: 1