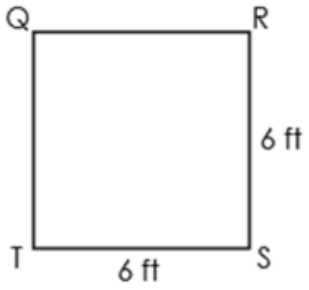
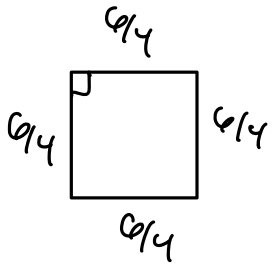
Pear Assessment

Ohio Spring 2025 Geometry Item Release 1.2

Created By Sean

1 Square $QRST$ is shown, with dimensions in feet (ft).





Felix divides each side length of $QRST$ by 4 to create square $WXYZ$.

Which statement describes whether the squares $QRST$ and $WXYZ$ are similar?

Corresponding angles are $\cong$
corresponding sides are proportional

(A) no, because the squares are different sizes

(B) yes, because the squares are the same size

(C) yes, because corresponding side lengths are proportional

(D) no, because corresponding side lengths are not proportional

2 Which pair of compound events is dependent?

1st Event changes 2nd Event

(A) rolling a cube numbered 1 through 6, twice

(B) Spinning the arrow on a spinner with 6 unequal sections, twice

(C) drawing two cards from a deck one at a time, with replacement

(D) picking two crayons from a box one at a time, without replacement

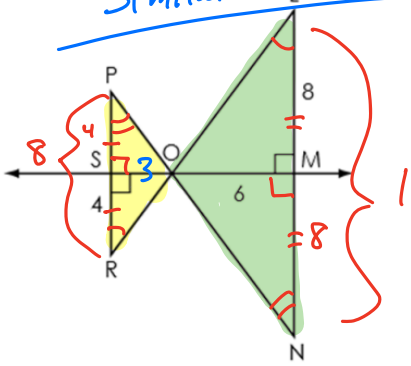
3 Triangles RPO and NLO are shown where $\overline{SM}$ bisects $\overline{PR}$ and $\overline{LN}$.

$A_{RPO} = \frac{1}{2}bh$

$= \frac{1}{2}(8)3$

$= 12$

Similar by AA



Green is x2 size yellow

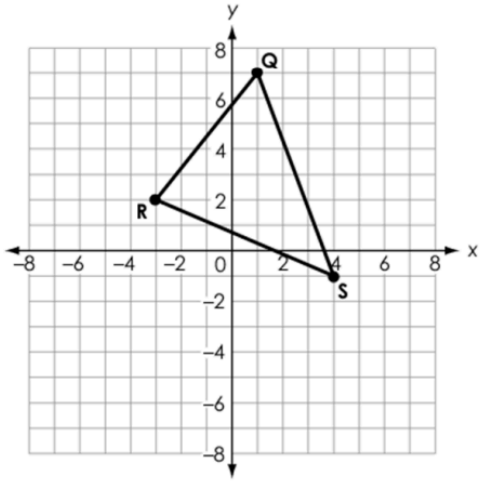
so SO = 3

What is the area, in square units, of $\triangle RPO$?

12 ***square units***

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4 Triangle QRS is transformed using the rule $(-x,\ y+2)$ to create triangle $Q'R'S'$



$Q(1,7) \rightarrow Q'(-1,9)$

$R(-3,2) \rightarrow R'(3,4)$

$S(4,-1) \rightarrow S'(-4,1)$

What are the $x-$ and $y-$ coordinates of the vertices of triangle $Q'R'S'$?

Q' (−1 , 9)

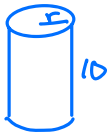
R' (3 , 4)

S' (−4 , 1)

5 A company makes cylindrical containers with a height of 10 inches. The volume of each container is less than 600 cubic inches and the surface area is greater than 200 square inches.

400 is between

What is a possible radius, in inches, of a cylindrical container that the company makes?



$V = \pi r^2 \cdot h$
$400 = \pi r^2 \cdot 10$
$40 = \pi r^2$
$\sqrt{\frac{40}{\pi}} = r$
$3.56 \approx r$

3.56 *inches*

Any Answer between 2.52 and 4.37

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6 Two figures are shown, with side lengths in units.

Figure 1

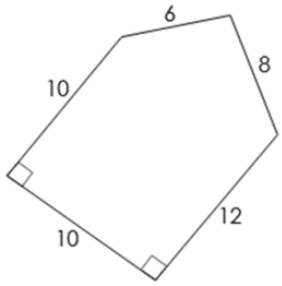
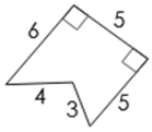


Figure 2



What is true about the two figures?

Triangles only

(A) Figure 1 and Figure 2 are similar by AA criterion.

(B) Figure 1 and Figure 2 are similar because the sides of Figure 2 are proportional to the sides of Figure 1.

never matters

(C) Figure 1 and Figure 2 are not similar because the orientation of Figure 2 is different from the orientation of Figure 1.

(D) Figure 1 and Figure 2 are riot similar because Figure 1 cannot be mapped onto Figure 2 using similarity transformations.

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7 The probabilities of two independent events are given.

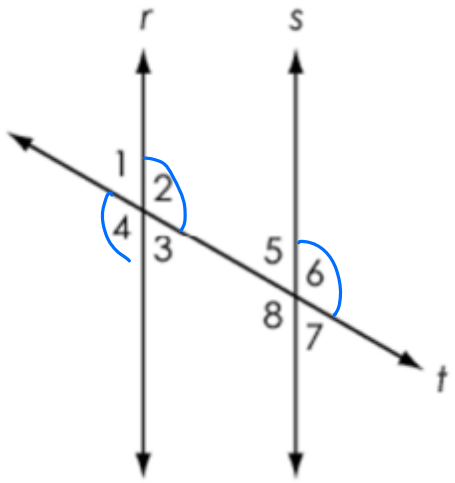
$P(A) = 0.82$
$P(B) = 0.60$

What is $P(A \cap B)$?

$P(A \cap B) = P(A \text{ and } B) = P(A) \cdot P(B)$
$= (0.82)(0.60)$
$= 0.492$

.492

8 Parallel lines r and s are cut by a transversal t as shown.



Jasmine wants to prove that corresponding angles are congruent she writes the partial Paragraph proof shown.

> Since vertical angles are congruent, $\angle 2 \cong \angle 4$. Also, since alternate exterior angles are congruent when parallel lines are cut by a transversal, $\angle 4 \cong \angle 6$.

Which statement could complete Jasmines proof?

(A) Then, $\angle 2 \cong \angle 6$ by the transitive property

(B) Then, $\angle 4 \cong \angle 8$ by the transitive property

(C) Then, $\angle 2 \cong \angle 8$ since alternate interior angles are congruent.

(D) Then, $\angle 6 \cong \angle 8$ since alternate interior angles are congruent.

not mentioned previously

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9 Which statement about triangles must be true?

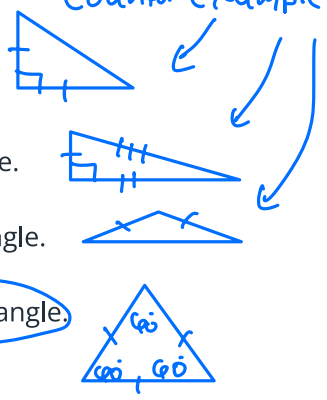
(A) A right triangle is always a scalene triangle.

(B) A right triangle is always an isosceles triangle.

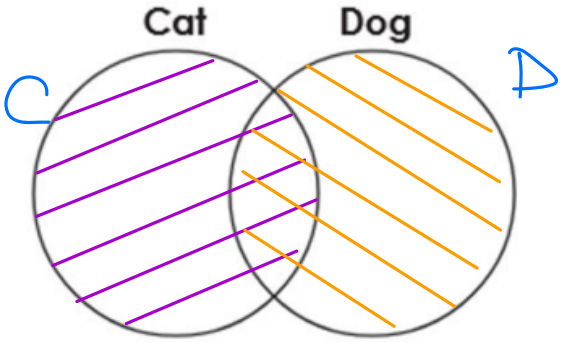
(C) An isosceles triangle is always an acute triangle.

(D) An equilateral triangle is always an acute triangle.

Counterexample



10 Rodas asks pet owners whether they own a cat or a dog and records the data in the Venn diagram shown.



Let C be the event that a pet owner owns a cat and D be the event that a pet owner owns a dog.

Which expression can be used to find the probability that a pet owner owns a cat or a dog?

(A) $P(C) + P(D) - P(C \cup D)$ (or)

(B) $P(C) + P(D) - P(C \cap D)$ (and)

(C) $P(C) + P(D) + P(C \cup D)$ (or)

(D) $P(C) + P(D) + P(C \cap D)$ (AND)

All of C and All D, MINUS intersection

intersection is counted twice.

---

11 There are 45 red marbles and 45 blue marbles in a bag. Santino draws 1 red marble from the bag and does not replace it. Then he draws 1 more marble from the bag.

Select a word or phrase for each blank box to describe the likelihood that the second marble Santino draws is blue.

Santino drawing a blue marble on the second draw is **a** likely to happen than it was on the first draw because the two events are **b**

$P(B) = \frac{45}{90}$

$P(B|R) = \frac{45}{89}$

a

- less
- more
- equally

b

- dependent.
- independent.
- neither dependent nor independent.

12 This item has two parts.

(a) Carlos runs every morning. Every day after his morning run, he records the average temperature, in degrees Fahrenheit ($^\circ F$), and whether Of not he sew other runners.

- Carlos makes a table to compare the data during his lest 30 runs.
- The average temperature was above $65^\circ F$ more days than it was below $65^\circ F$.
- He did not see other runners on 5 days when the average temperature was below $65^\circ F$.
- He saw other runners twice as frequently when the average temperature was above $65^\circ F$ Men when it was below $65^\circ F$.

Part A

Complete the table to show a possible number of days each event occurred.

	Sees no runners	Sees other runners
Below $65^\circ F$	5	5 x
Above $65^\circ F$	10	10 2x

(b) **Part B**

Based on the data in the table, what is the probability that Carlos will see another runner given that the average temperature is below $65^\circ F$?

$\frac{1}{2}$

13 A bag has pink and black bracelets. Jeremy picks a black bracelet from the bag and does not replace it.

- Event X Picking a black bracelet. | X
- Event Y Picking a pink bracelet.

Jeremy picks a second bracelet from the bag.

Which expression describes the probability that the second bracelet is pink?

(A) $P(Y|X)$ He picks Y given he already picked X

(B) $P(X|Y)$

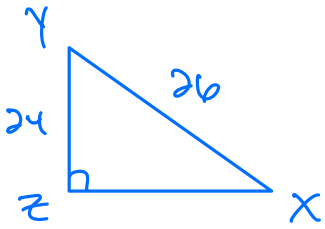
(C) $P(X \cup Y)$

(D) $P(X \cap Y)$

14 In right triangle XYZ, $\angle Z$ is a right angle and $\sin(X) = \frac{24}{26}$.

What is the value of $\cos(Y)$?

$\frac{24}{26}$



15 The density of gold is 19.32 grams (g) per cubic centimeter (cm). A solid rectangular block of gold with dimensions 5 cm by 9 cm by 21 an is placed on a scale.

What is the mass, in grams, of the solid block of gold?

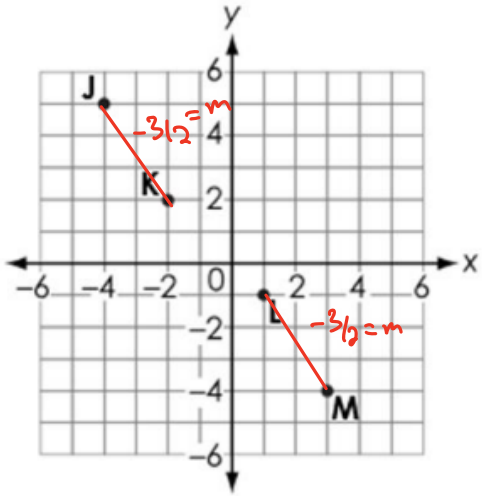
$D = \frac{g}{cm^3}$

$19.32 = \frac{g}{5 \cdot 9 \cdot 21}$

$(19.32)\,5 \cdot 9 \cdot 21 = g$

18,257.4 g

16 Points J, K, L, and M are shown on the coordinate plane.



Billie claims line segment JK is parallel to line segment LM.

Complete the sentence describing Billies claim.

Billie's claim is [a] because the slope of line segment JK is [-3/2] and the slope Of line segment LM is the [b]

a

- (Correct)
- incorrect

b

- opposite reciprocal.
- opposite.
- (same.)

17 Probabilities for two independent events, B and C, are given.

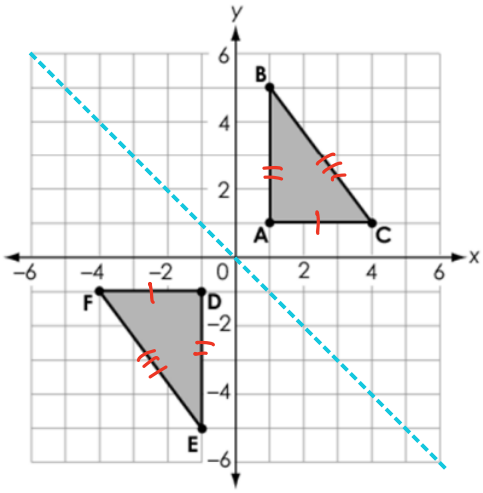
- $P(B) = 0.20$
- $P(C) = 0.75$

What is $P(B \text{ and } C)$? $= P(B) \cdot P(C)$

0.15 $= (0.20)(0.75)$

---

18 Triangle ABC is transformed to create triangle DEF as shown.



Select all of the transformations that could have been performed on triangle ABC to create triangle DEF.

- [ ] A a reflection across the line $y = -x$ NO
- [x] B a rotation of 180° clockwise about the origin YES
- [ ] C a translation 2 units down and 2 units to the left NO
- [x] D a reflection across the y-axis, and then a reflection across the x-axis YES
- [ ] E a reflection across the x-axis, and then a translation 2 units to the left NO

---

19 Martin claims that for any rotation of a shape between 0 and 360 degrees about a point on the coordinate plane, there will always be one vertex of the shape that is stationary

Which statement is true about Marlin's claim?

(A) Martin's claim is correct because a rotation preserves angle measures.

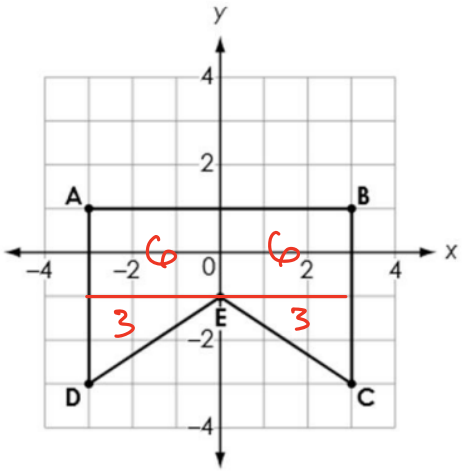
(B) Marlin's claim is correct because the center of rotation is always stationary.

(C) Marlin's claim is incorrect because there can be more than one vertex that is stationary after a rotation.

(D) Martin's claim is incorrect because a vertex of the shape is stationary only if that vertex is the center of rotation.

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20 A figure is shown,



What is the area, in square units, of the figure?

18 square units

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21 Which definition most accurately describes a single angle?

(A) the figure formed by lwo parallel rays

(B) the figure formed by two intersecting rays

(C) the figure formed by two rays that are not parallel

(D) the figure formed by two rays with a common endpoint
