# SUMMER MATH PACKET

## 7th Grade to Algebra

Name: _____

**1.** Determine if $0.875$ is rational or irrational and give a reason for your answer.

The number $0.875$ is _____ because
word bank 1

_____
word bank 2

**This word bank also applies to questions 2 - 5.**

Word bank 1: (a) rational, (b) irrational

Word bank 2: (a) it is a decimal that terminates, (b) it is the square root of a non-perfect square, (c) it is the square root of a perfect square, (d) it is a decimal that repeats, (e) it is a decimal that does not repeat or terminate

**2.** Determine if $\sqrt{16}$ is rational or irrational and give a reason for your answer.

The number $\sqrt{16}$ is _____ because
word bank 1

_____
word bank 2

**3.** Determine if $0.5199222222222222...$ is rational or irrational and give a reason for your answer.

The number $0.5199222222222222...$ is _____
word bank 1

because

_____
word bank 2

**4.** Determine if $0.8387667688386759...$ is rational or irrational and give a reason for your answer.

The number $0.8387667688386759...$ is _____
word bank 1

because

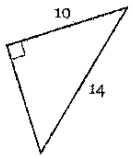
_____
word bank 2

**5.** Determine if $\sqrt{75}$ is rational or irrational and give a reason for your answer.

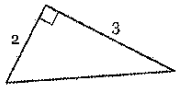
The number $\sqrt{75}$ is _____ because
word bank 1

_____
word bank 2

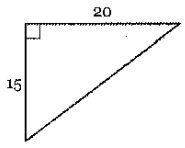
**6.** Find the length of the third side. If necessary, round to the nearest tenth.




**7.** Find the length of the third side. If necessary, round to the nearest tenth.



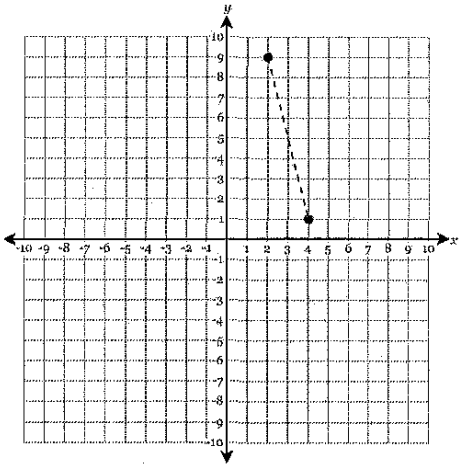

**8.** Find the length of the third side. If necessary, round to the nearest tenth.



**9.** One of the legs of a right triangle measures 8 cm and the other leg measures 18 cm. Find the measure of the hypotenuse. If necessary, round to the nearest tenth.

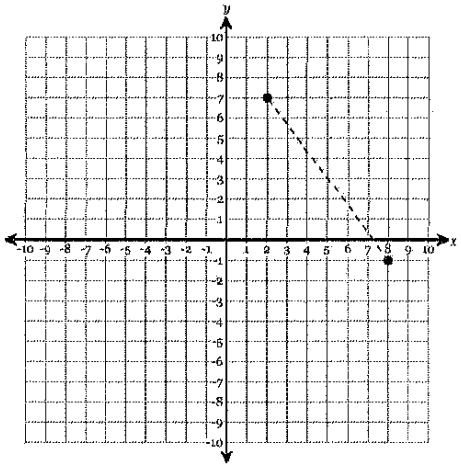
**10.** One of the legs of a right triangle measures 2 cm and its hypotenuse measures 11 cm. Find the measure of the other leg. If necessary, round to the nearest tenth.

**11.** Graph a right triangle with the points $(2, 9)$ and $(4, 1)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



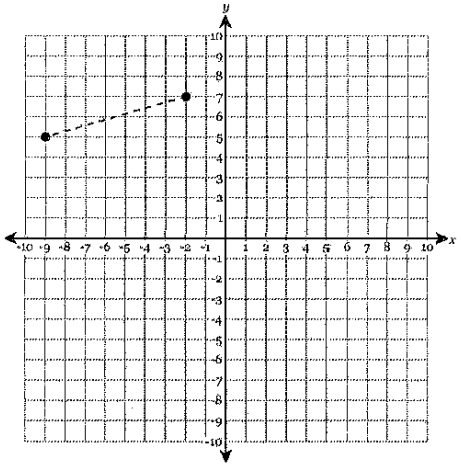
Leg 1: ____ Leg 2: ____ Distance: ____

**12.** Graph a right triangle with the points $(8, -1)$ and $(2, 7)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



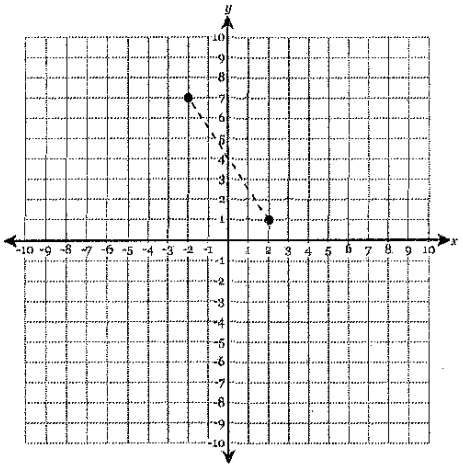
Leg 1: ____ Leg 2: ____ Distance: ____

**13.** Graph a right triangle with the points $(-2, 7)$ and $(-9, 5)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



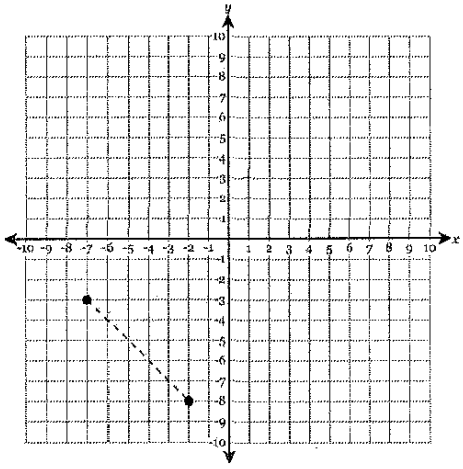
Leg 1: ____ Leg 2: ____ Distance: ____

**14.** Graph a right triangle with the points $(2, 1)$ and $(-2, 7)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



Leg 1: ____ Leg 2: ____ Distance: ____

**15.** Graph a right triangle with the points $(-7, -3)$ and $(-2, -8)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



Leg 1: ____ Leg 2: ____ Distance: ____

**16.** Rewrite in simplest terms:
$(4x + 9y) - (-4x - 8y)$

**17.** Rewrite in simplest terms: $(6x + 4) + (2x - 8)$

**18.** Rewrite in simplest terms: $(-6x + 2) + (3x - 6)$

**19.** Rewrite in simplest terms: $(-4x + 7) - (x - 7)$

**20.** Use the distributive property to write an equivalent expression.

$$7(m + 9n)$$

**21.** Use the distributive property to write an equivalent expression.

$$4(n+3)$$

**22.** Use the distributive property to write an equivalent expression.

$$4(8q+4r-4)$$

**23.** Use the distributive property to write an equivalent expression.

$$4(6f-3g+10)$$

**24.** Rewrite in simplest terms:
$-7(-6w+8w-7)-7w$

**25.** Rewrite in simplest terms: $-2u-8(-10u+10)$

**26.** Rewrite in simplest terms:
$10(-10n-8p)-8p-2(-9p-4n)$

**27.** Rewrite in simplest terms:
$9(-4r+7)+10(8r-9)$

**28.** Write the number $9.7 \times 10^{2}$ in standard form.

**29.** Write the number $7.8 \times 10^{-3}$ in standard form.

**30.** Write the number $5.8 \times 10^{-4}$ in standard form.

**31.** Write the number $8.8 \times 10^{5}$ in standard form.

**32.** Write the number $1 \times 10^5$ in standard form.

**33.** Write the number 0.000009 in scientific notation.

**34.** Write the number 67,000 in scientific notation.

**35.** Write the number 0.0051 in scientific notation.

**36.** Write the number 500 in scientific notation.

**37.** Write the number 0.0011 in scientific notation.

**38.** What is the product of $7.0 \times 10^3$ and $8.7 \times 10^5$ expressed in scientific notation?

**39.** What is the quotient of $6.58 \times 10^6$ and $4.7 \times 10^3$ expressed in scientific notation?

**40.** What is the quotient of $9.2 \times 10^8$ and $4.6 \times 10^4$ expressed in scientific notation?

**41.** What is the quotient of $8.1 \times 10^6$ and $3.0 \times 10^3$ expressed in scientific notation?

**42.** What is the product of $5.9 \times 10^3$ and $5.9 \times 10^4$ expressed in scientific notation?

**43.** The approximate populations of Massachusetts and Alaska (as of 2019) are listed below:

Massachusetts: $6.89 \times 10^6$

Alaska: $7.32 \times 10^5$

What's the difference in population between the two states? Express your answer using either standard notation or scientific notation.

**44.** The mass of a benzene molecule is $1.3 \times 10^{-22}$ grams. The mass of a water molecule is $2.99 \times 10^{-23}$ grams. How many times greater is the mass of a benzene molecule than the mass of a water molecule? Write your answer in standard notation, rounding to the nearest tenth.

**45.** How many times greater is $5.04 \times 10^4$ than $7.2 \times 10^2$? Express your answer using either standard notation or scientific notation.

**46.** What's the difference between $5.6 \times 10^{-3}$ and $1.3 \times 10^{-5}$? Express your answer using either standard notation or scientific notation.

**47.** The approximate areas of Texas and Rhode Island are listed below:

Texas: $6.96 \times 10^5$ square kilometers

Rhode Island: $4 \times 10^3$ square kilometers

How much larger is Texas? Express your answer using either standard notation or scientific notation.

**48.** A water park has pools, slides, and rides that, in total, make use of $4.7 \times 10^5$ gallons of water. They plan to add a ride that would make use of an additional $630,000$ gallons of water. Use scientific notation to express the total gallons of water made use of in the park after the new ride is installed.

**49.** $2.3 \times 10^4$ bacteria are measured to be in a dirt sample that weighs $1$ gram. Use scientific notation to express the number of bacteria that would be in a sample weighing $14$ grams.

**50.** The size of a cell is typically found by capturing an image under a microscope then using software to measure its diameter. Two cells are measured using this method:

Cell H: $4.85 \times 10^{-2}$ centimeters

Cell K: $4.17 \times 10^{-3}$ centimeters

How many times larger is the diameter of cell H than the diameter of cell K? Write your answer in standard notation, rounding to the nearest tenth.

**51.** The size of a cell is typically found by capturing an image under a microscope then using software to measure its diameter. Two cells are measured using this method:

Cell D: $8.07 \times 10^{-2}$ centimeters

Cell E: $6.6 \times 10^{-4}$ centimeters

How much larger is the diameter of cell D than the diameter of cell E? Express your answer using scientific notation.

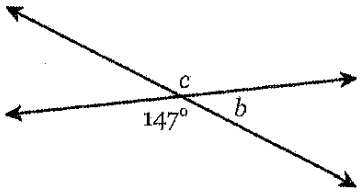
**52.** The approximate areas of Delaware and Washington, D.C. are listed below:

Delaware: $6.45 \times 10^3$ square kilometers

Washington, D.C.: $1.77 \times 10^2$ square kilometers

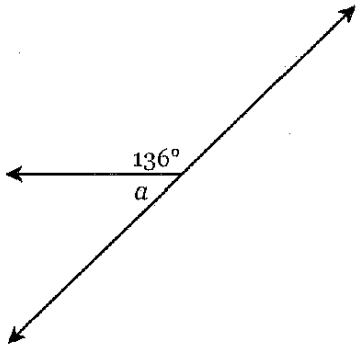
How many times larger is Delaware than Washington, D.C.? Write your answer in standard notation, rounding to the nearest tenth.

**53.** Find the measure of the missing angles.

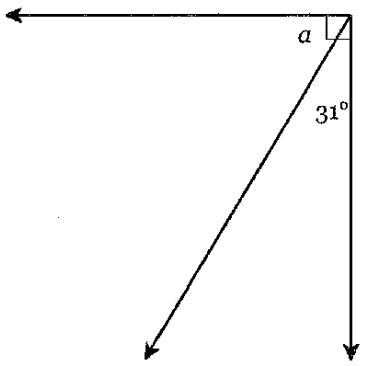



$b =$ _____° $c =$ _____°

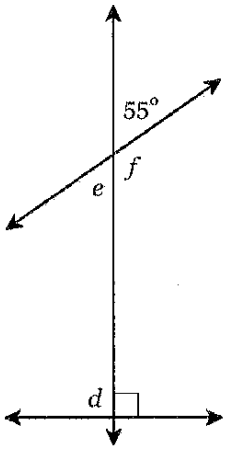
**54.** Find the measure of the missing angle.



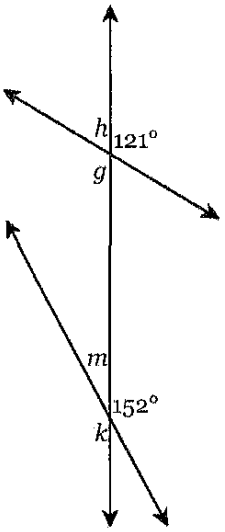
**55.** Find the measure of the missing angle.



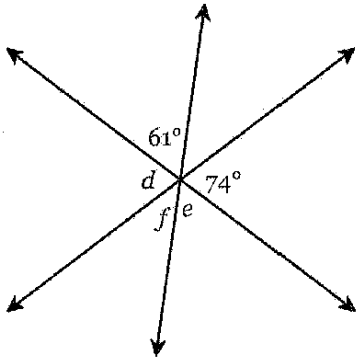

**56.** Find the degree measures $d$, $e$, and $f$ of the missing angles in the diagram below.



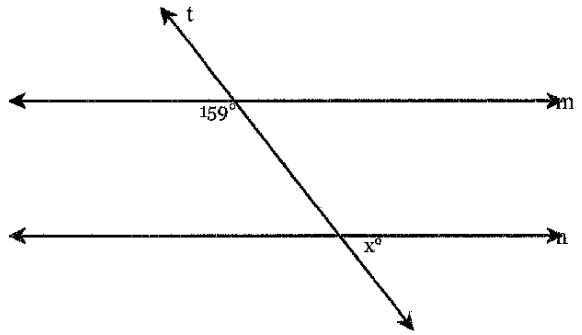

**57.** Find the degree measures $g$, $h$, $k$, and $m$ of the missing angles in the diagram below.



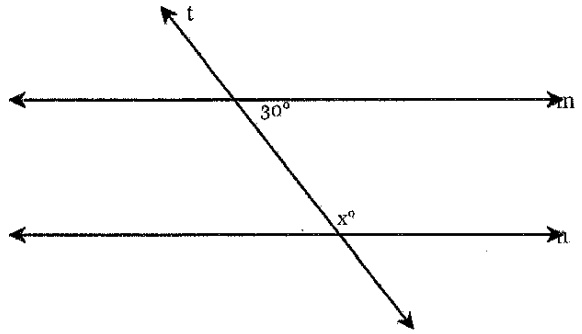

**58.** Find the degree measures $d$, $e$, and $f$ of the missing angles in the diagram below.



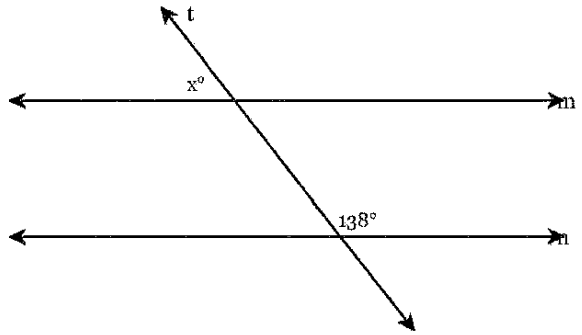
**59.** Given $m \| n$, find the value of x.



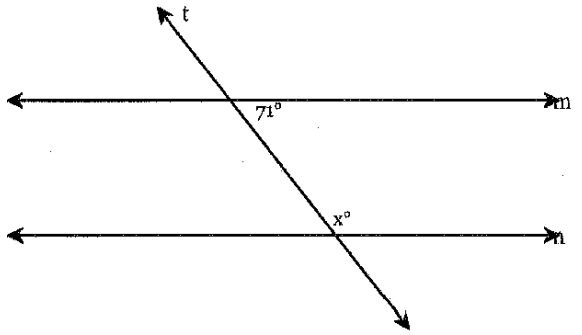

**60.** Given $m \| n$, find the value of x.



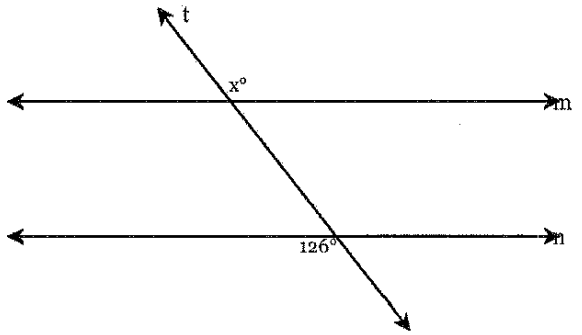

**61.** Given $m \| n$, find the value of x.



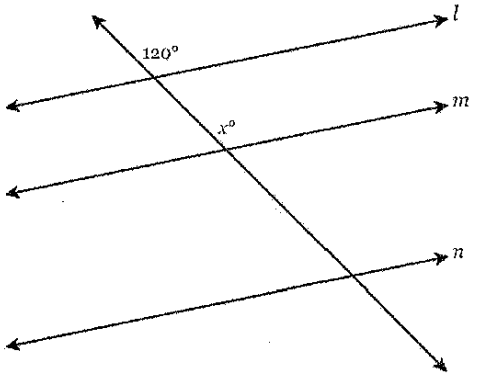

**62.** Given $m \| n$, find the value of x.



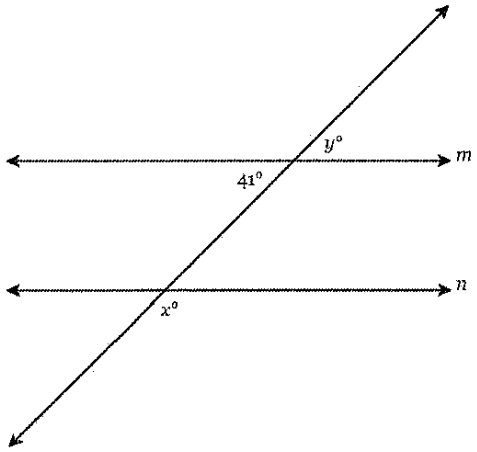

**63.** Given $m \| n$, find the value of x.



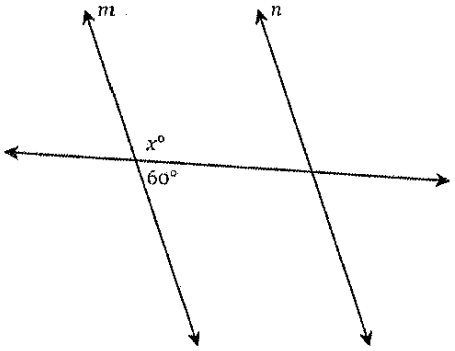

**64.** Given $l \| m \| n$, find the value of $x$.



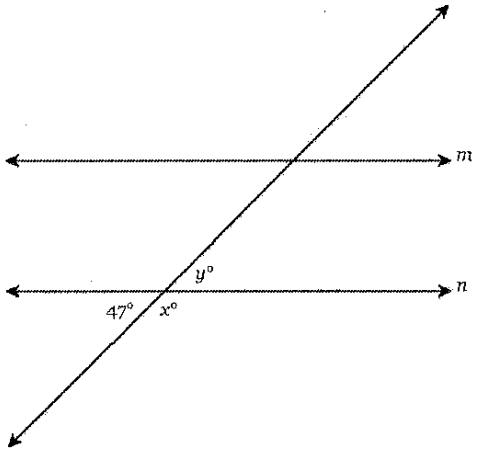
**65.** Given $m \parallel n$, find the value of $x$ and $y$.



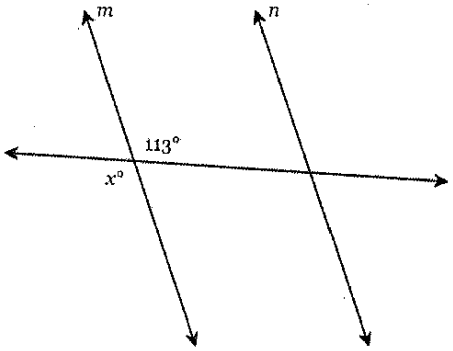

**66.** Given $m \parallel n$, find the value of $x$.



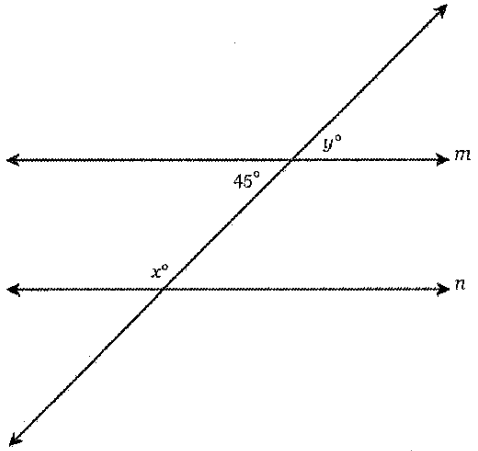

**67.** Given $m \parallel n$, find the value of $x$ and $y$.



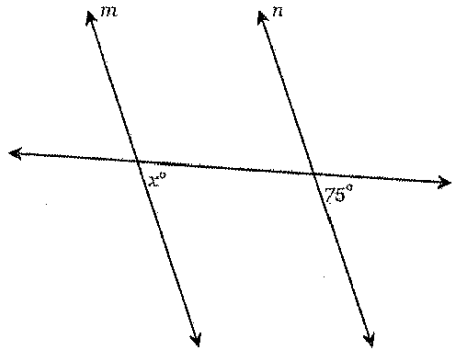

**68.** Given $m \parallel n$, find the value of $x$.



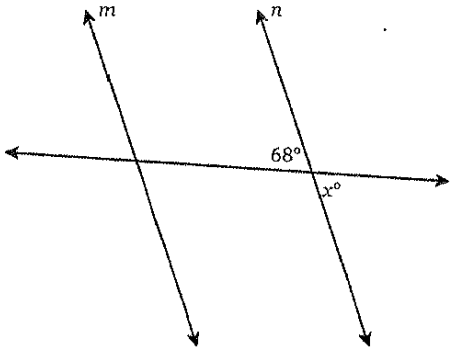

**69.** Given $m \parallel n$, find the value of $x$ and $y$.



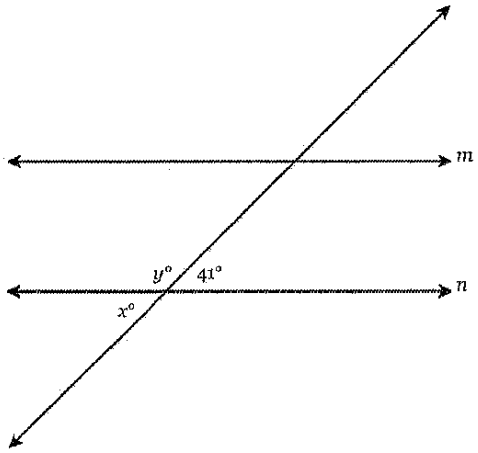

**70.** Given $m \parallel n$, find the value of $x$.



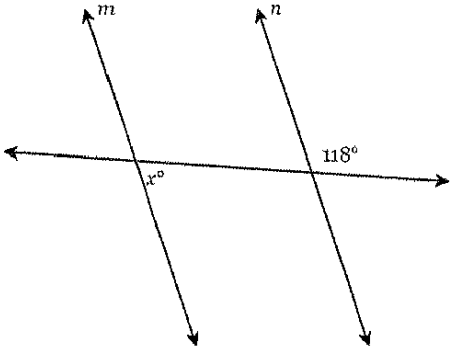
**71.** Given $m \parallel n$, find the value of $x$.




**72.** Given $m \parallel n$, find the value of $x$ and $y$.




**73.** Given $m \parallel n$, find the value of $x$.

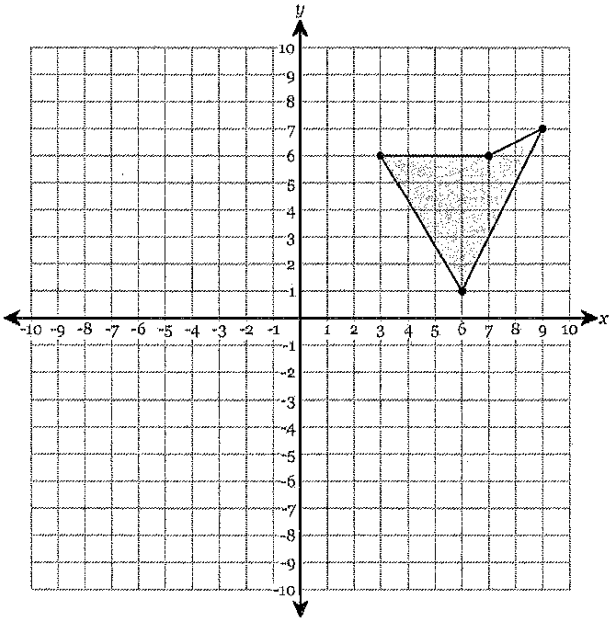



**74.** What is the image point of $(-1, -7)$ after a translation left 4 units and up 2 units?

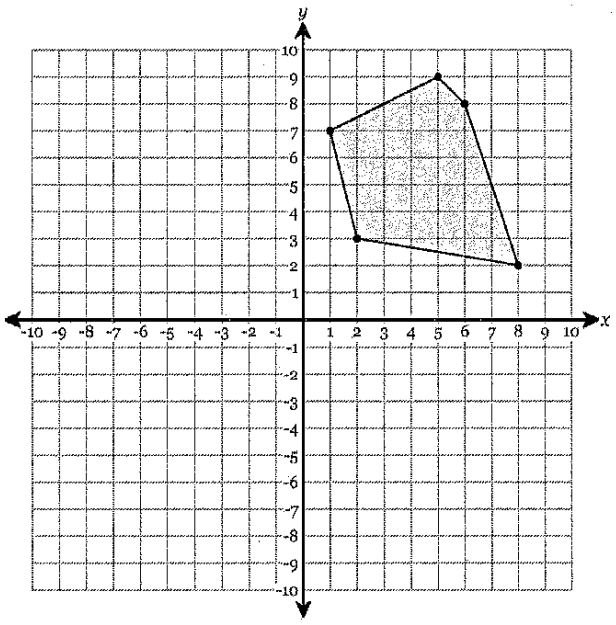
**75.** What is the image point of $(3, -4)$ after a translation left 2 units and up 5 units?

**76.** What is the image point of $(-7, -2)$ after a translation left 5 units and down 4 units?

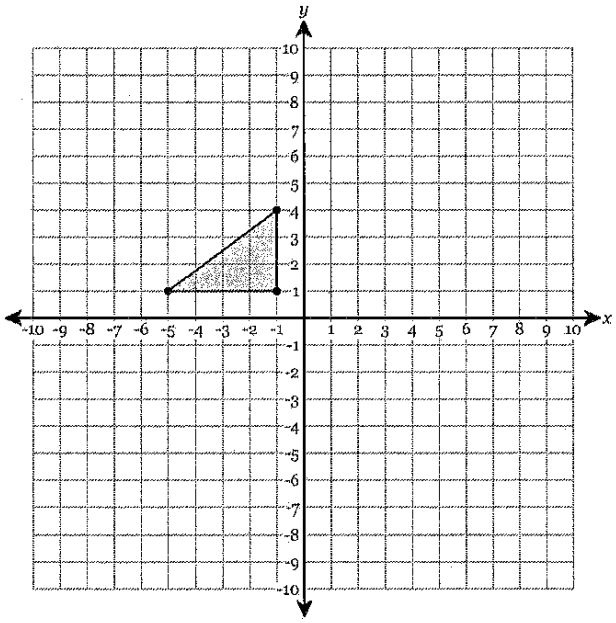
**77.** Translate the figure 6 units left and 3 units down.



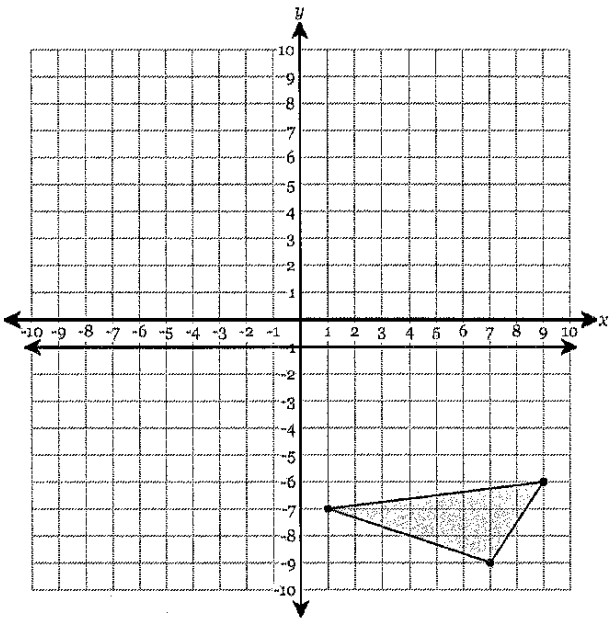
**78.** Translate the figure 2 units left and 6 units down.



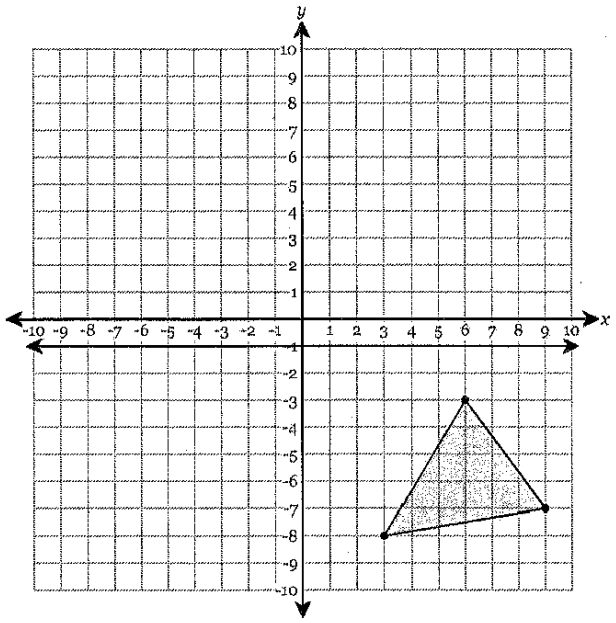
**79.** Translate the figure 3 units left and 5 units down.



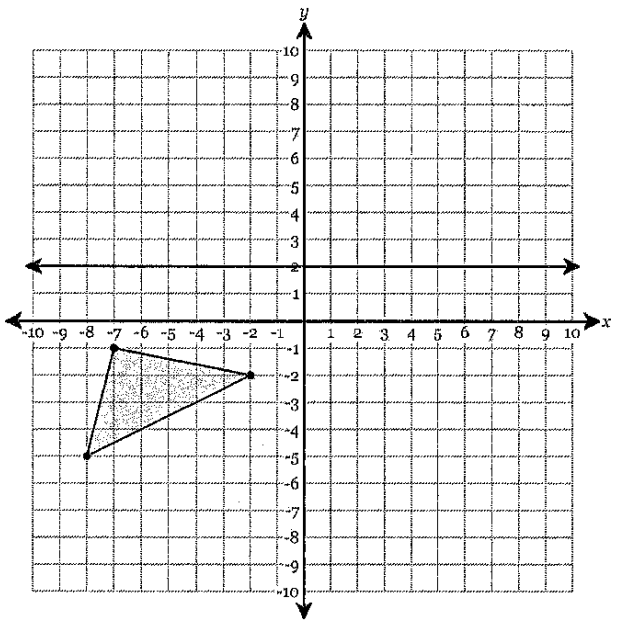
**80.** Reflect the figure over the line $y = -1$.



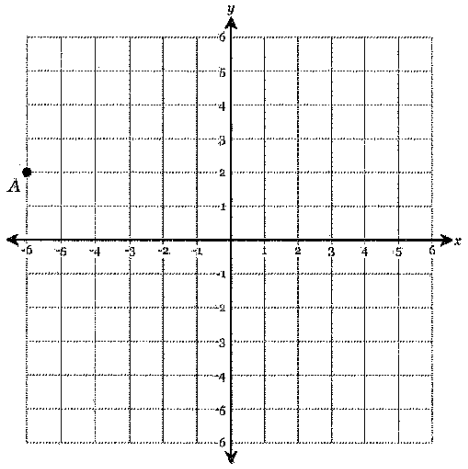
**81.** Reflect the figure over the line $y = -1$.



**82.** Reflect the figure over the line $y = 2$.



**83.** The point $A$ is plotted on the coordinate grid below. Plot the point $A'$, the reflection of $A$ over the $y$-axis.

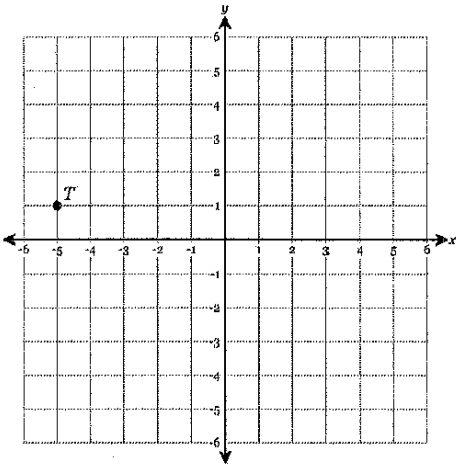



Coordinates of $A$: $(\_\_\_\_\_, \_\_\_\_\_)$

Coordinates of $A'$: $(\_\_\_\_\_, \_\_\_\_\_)$

When a point is reflected over the $y$-axis, the
( x-coordinate / y-coordinate ) changes sign.

**84.** The point $T$ is plotted on the coordinate grid below. Plot the point $T'$, the reflection of $T$ over the $x$-axis.

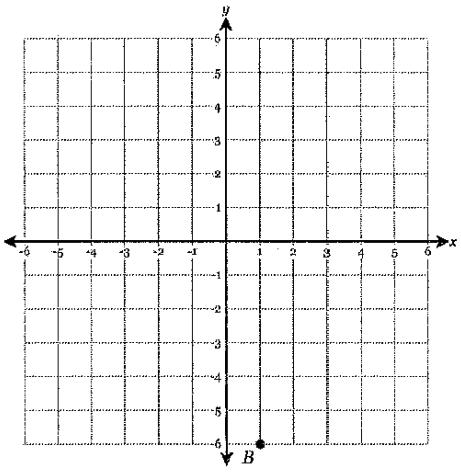



Coordinates of $T$: $(\_\_\_\_\_, \_\_\_\_\_)$

Coordinates of $T'$: $(\_\_\_\_\_, \_\_\_\_\_)$

When a point is reflected over the $x$-axis, the
( x-coordinate / y-coordinate ) changes sign.

**85.** The point $B$ is plotted on the coordinate grid below. Plot the point $B'$, the reflection of $B$ over the $x$-axis.




Coordinates of $B$: $(\_\_\_\_\_, \_\_\_\_\_)$

Coordinates of $B'$: $(\_\_\_\_\_, \_\_\_\_\_)$

When a point is reflected over the $x$-axis, the
( x-coordinate / y-coordinate ) changes sign.

**86.** Point $Q$ is located at $(-4, -1)$ on the coordinate plane. Point $Q$ is reflected over the $y$-axis to create point $Q'$. Point $Q'$ is then reflected over the $x$-axis to create point $Q''$. What ordered pair describes the location of $Q''$?

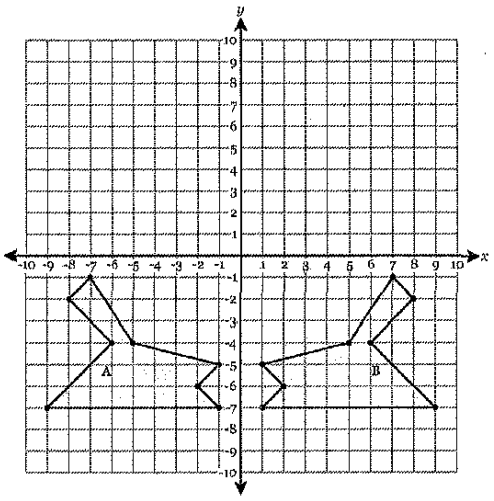
**87.** Point $K$ is located at $(-4, -5)$ on the coordinate plane. Point $K$ is reflected over the $y$-axis to create point $K'$. What ordered pair describes the location of $K'$?

**88.** Point $J$ is located at $(5, -2)$ on the coordinate plane. Point $J$ is reflected over the $y$-axis to create point $J'$. What ordered pair describes the location of $J'$?

**89.** Point $P$ is located at $(4, 5)$ on the coordinate plane. Point $P$ is reflected over the $y$-axis to create point $P'$. Point $P'$ is then reflected over the $x$-axis to create point $P''$. What ordered pair describes the location of $P''$?

**90.** Point $A$ is located at $(3, -4)$ on the coordinate plane. Point $A$ is reflected over the $x$-axis to create point $A'$. What ordered pair describes the location of $A'$?

**91.** Which transformation would take Shape A to Shape B?



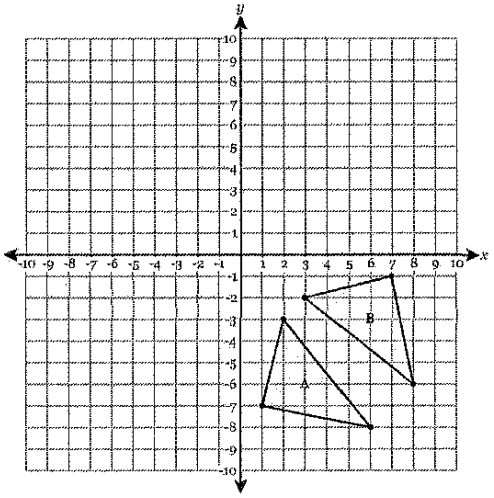

A. A reflection over the y-axis

B. A clockwise rotation of $270°$ about the origin

C. A reflection over the x-axis

D. A clockwise rotation of $90°$ about the origin

**92.** Which transformation would take Shape A to Shape B?



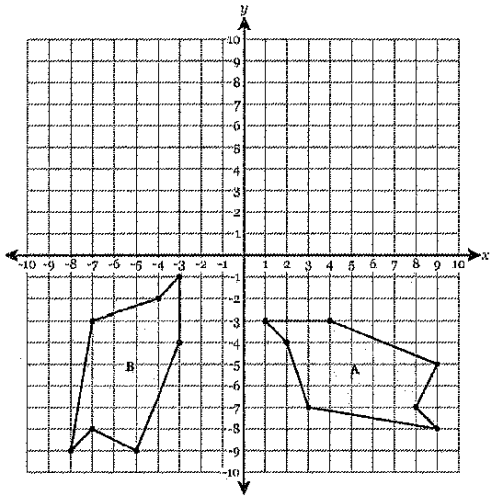

A. A clockwise rotation of $180°$ about the origin

B. A reflection over the line $y = x$

C. A clockwise rotation of $270°$ about the origin

D. A reflection over the line $y = -x$

**93.** Which transformation would take Shape A to Shape B?



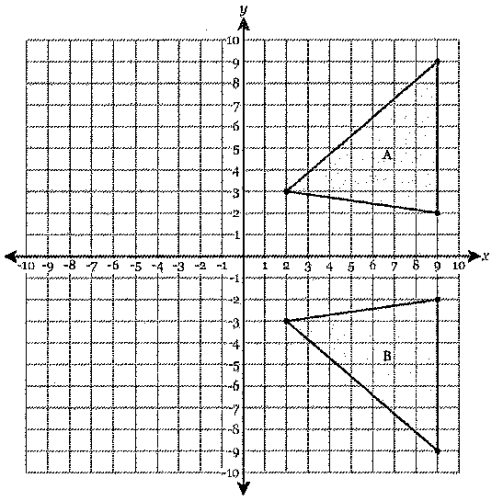

A. A counterclockwise rotation of $270°$ about the origin

B. A reflection over the x-axis

C. A reflection over the y-axis

D. A counterclockwise rotation of $90°$ about the origin

**94.** Which transformation would take Shape A to Shape B?



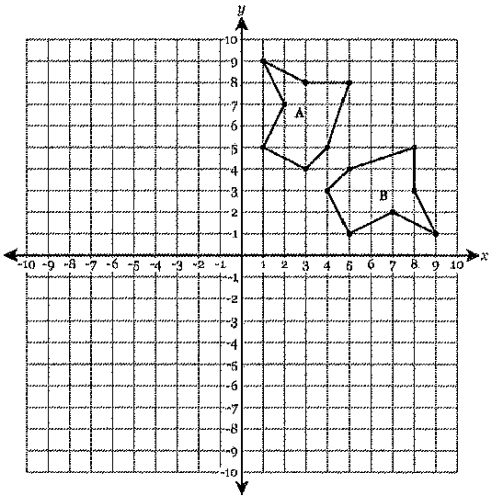

A. A reflection over the y-axis

B. A counterclockwise rotation of $270°$ about the origin

C. A counterclockwise rotation of $90°$ about the origin

D. A reflection over the x-axis

**95.** Which transformation would take Shape A to Shape B?



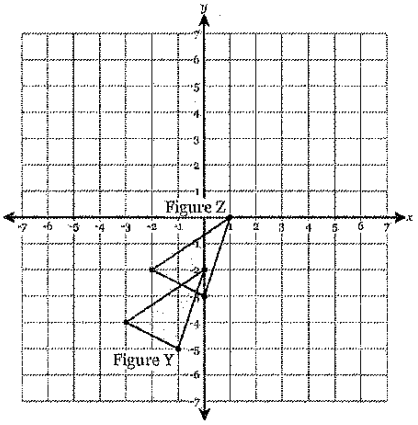

A. A clockwise rotation of $90°$ about the origin

B. A reflection over the line $y = -x$

C. A reflection over the line $y = x$

D. A clockwise rotation of $180°$ about the origin

**96.** Figure $Z$ is the result of a transformation on Figure $Y$. Which transformation would accomplish this?



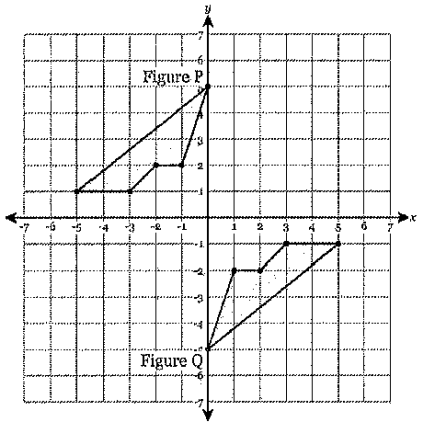

A. A translation 2 units left and 1 unit down

B. A translation 1 unit left and 2 units down

C. A translation 1 unit right and 2 units up

D. A translation 2 units right and 1 unit up

**97.** Figure $Q$ is the result of a transformation on Figure $P$. Which transformation would accomplish this?



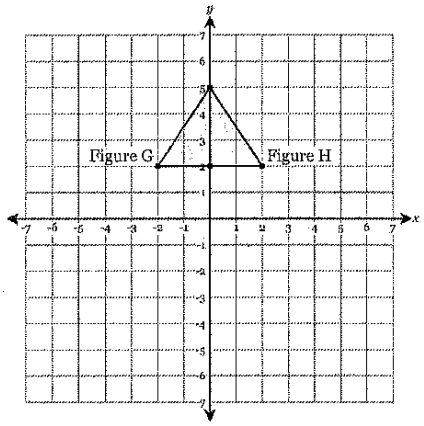

A. A rotation 90° counterclockwise about the origin

B. A rotation 90° clockwise about the origin

C. A reflection over the $x$ -axis

D. A rotation 180° counterclockwise about the origin

**98.** Figure $H$ is the result of a transformation on Figure $G$. Which transformation would accomplish this?



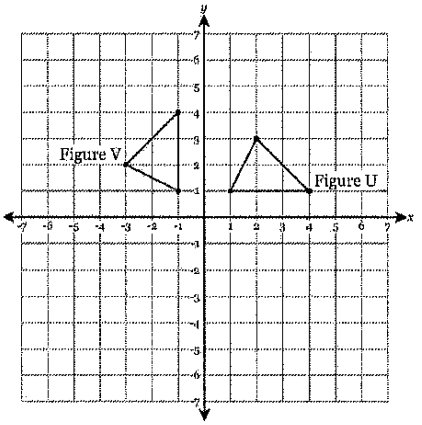

A. A rotation 180° clockwise about the origin

B. A translation 4 units to the right.

C. A reflection over the $x$ -axis

D. A reflection over the $y$ -axis

**99.** Figure $V$ is the result of a transformation on Figure $U$. Which transformation would accomplish this?



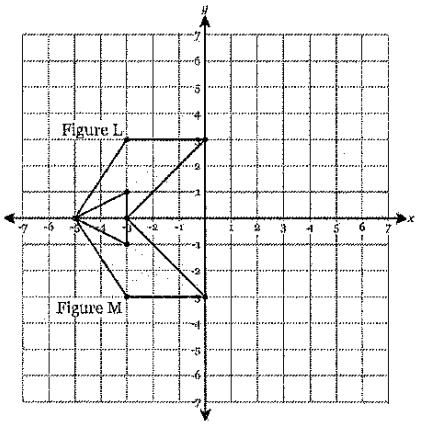

A. A translation 5 units to the right and 1 unit up

B. A rotation 90° clockwise about the origin

C. A rotation 180° counterclockwise about the origin

D. A rotation 90° counterclockwise about the origin

**100.** Figure $M$ is the result of a transformation on Figure $L$. Which transformation would accomplish this?



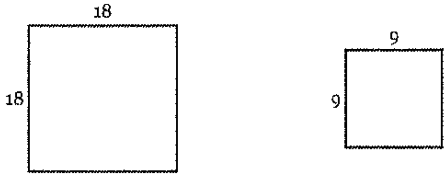

A. A rotation 180° clockwise about the origin

B. A reflection over the $x$ -axis

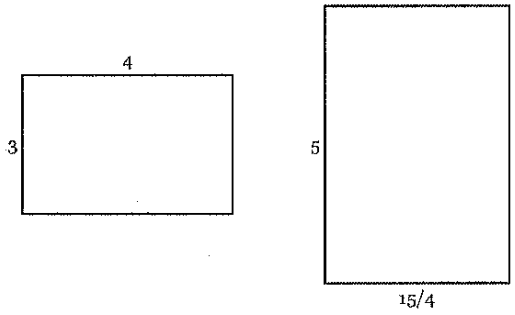
C. A reflection over the $y$ -axis

D. A translation 2 units up

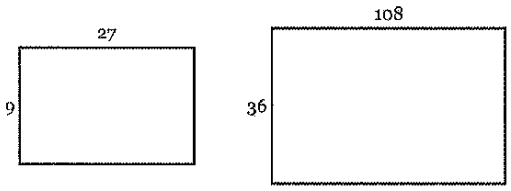
**101.** The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



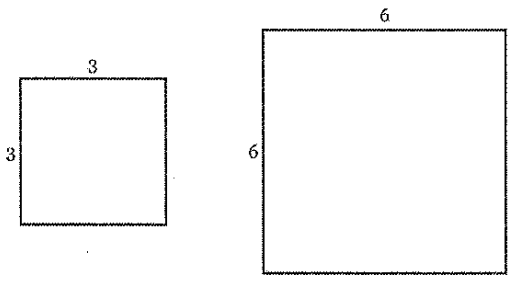

**102.** The rectangle on the right is a scaled copy of the rectangle on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



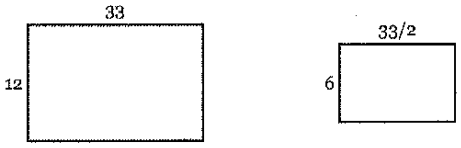

**103.** The rectangle on the right is a scaled copy of the rectangle on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



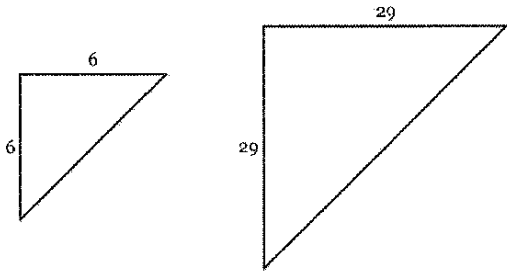

**104.** The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



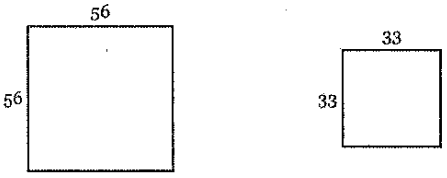
**105.** The rectangle on the right is a scaled copy of the rectangle on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



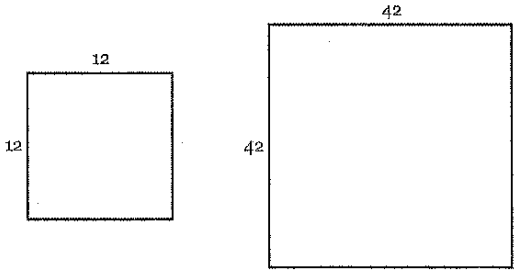

**106.** The right triangle on the right is a scaled copy of the right triangle on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



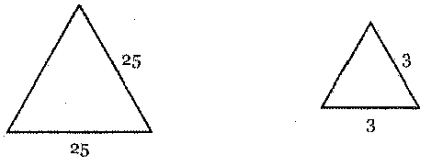

**107.** The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



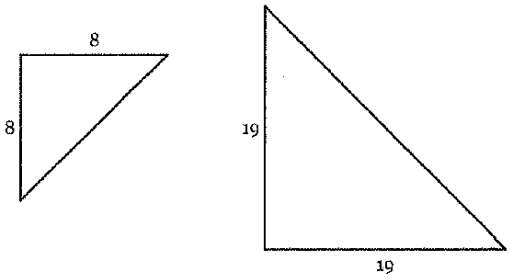

**108.** The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



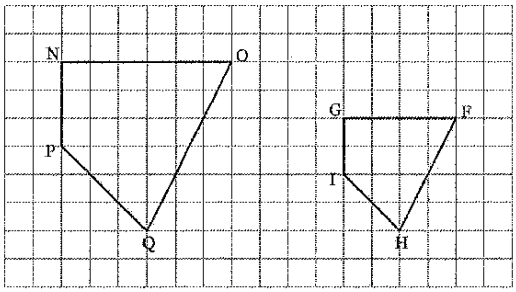

**109.** The triangle on the right is a scaled copy of the triangle on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



**110.** The right triangle on the right is a scaled copy of the right triangle on the left. Identify the scale factor. Express your answer as a fraction in simplest form.




**111.** The figure on the right is a *scaled copy* of the figure on the left.



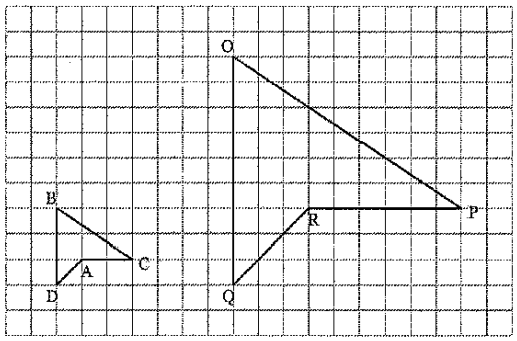

Which side in the figure on the right *corresponds* to segment $\overline{QO}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{IH}$, (b) $\overline{HF}$, (c) $\overline{FG}$, (d) $\overline{GI}$

Word bank 2: (a) 2, (b) 3, (c) 1/2, (d) 1/3, (e) 2/3, (f) 3/2

**112.** The figure on the right is a *scaled copy* of the figure on the left.



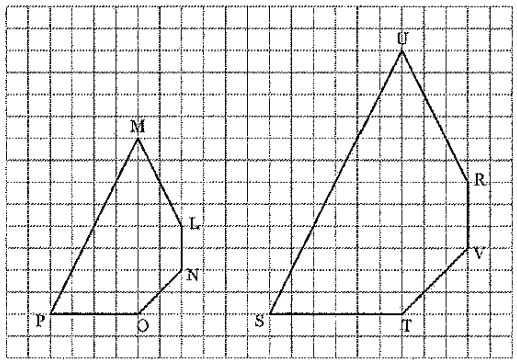

Which side in the figure on the right *corresponds* to segment $\overline{AC}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{QR}$, (b) $\overline{RP}$, (c) $\overline{PO}$, (d) $\overline{OQ}$

Word bank 2: (a) 2, (b) 3, (c) 1/2, (d) 1/3, (e) 2/3, (f) 3/2

**113.** The figure on the right is a *scaled copy* of the figure on the left.



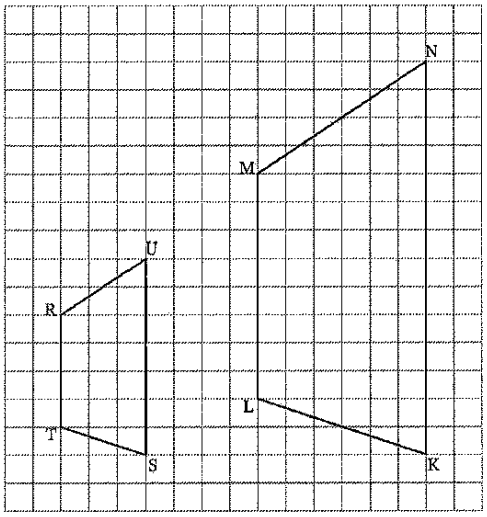

Which side in the figure on the right *corresponds* to segment $\overline{ON}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{ST}$, (b) $\overline{TV}$, (c) $\overline{VR}$, (d) $\overline{RU}$, (e) $\overline{US}$

Word bank 2: (a) 2, (b) 3, (c) 1/2, (d) 1/3, (e) 2/3, (f) 3/2

**114.** The figure on the right is a *scaled copy* of the figure on the left.



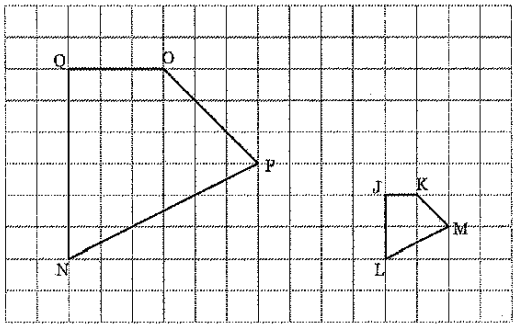

Which side in the figure on the right *corresponds* to segment $\overline{RT}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{LK}$, (b) $\overline{KN}$, (c) $\overline{NM}$, (d) $\overline{ML}$

Word bank 2: (a) 2, (b) 3, (c) 1/2, (d) 1/3, (e) 2/3, (f) 3/2

**115.** The figure on the right is a *scaled copy* of the figure on the left.




Which side in the figure on the right *corresponds* to segment $\overline{PO}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{LM}$, (b) $\overline{MK}$, (c) $\overline{KJ}$, (d) $\overline{JL}$

Word bank 2: (a) 2, (b) 3, (c) 1/2, (d) 1/3, (e) 2/3, (f) 3/2

**116.** What is the image of $(-5, -7)$ after a dilation by a scale factor of $2$ centered at the origin?

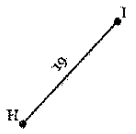
**117.** What is the image of $(-3, -3)$ after a dilation by a scale factor of $4$ centered at the origin?

**118.** What is the image of $(-8, 9)$ after a dilation by a scale factor of $2$ centered at the origin?

**119.** What is the image of $(6, -1)$ after a dilation by a scale factor of $3$ centered at the origin?

**120.** What is the image of $(1, -8)$ after a dilation by a scale factor of $4$ centered at the origin?

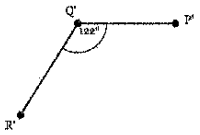
**121.** The segment below is dilated by a scale factor of $5$ to form $\overline{H'I'}$. What is the measure of $\overline{H'I'}$?



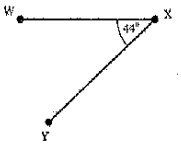

**122.** A figure containing $\angle TUV$ is dilated by a scale factor of $5$ to form a new figure which contains $\angle T'U'V'$. $\angle TUV$ measures $118°$. What is the measure of $\angle T'U'V'$?

**123.** $\overline{XY}$ is dilated by a scale factor of $\frac{2}{3}$ to form $\overline{X'Y'}$. $\overline{X'Y'}$ measures $4$. What is the measure of $\overline{XY}$?

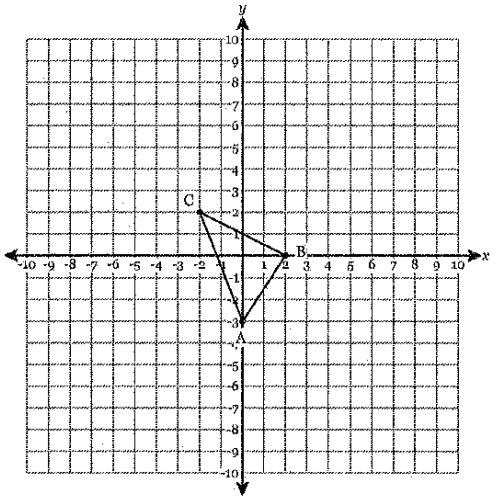
**124.** The angle below is the image formed when a figure containing $\angle PQR$ is dilated by a scale factor of $3$. What is the measure of $\angle PQR$?



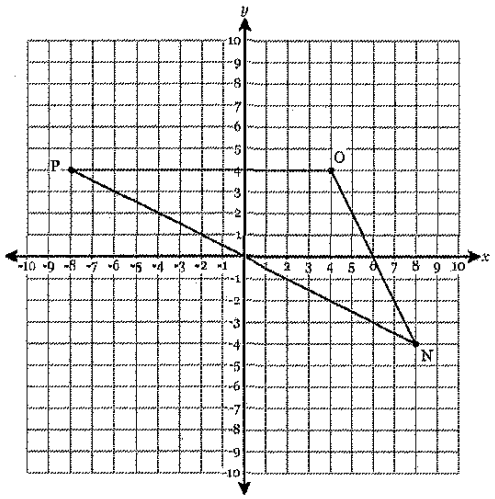

**125.** The figure below is dilated by a scale factor of $4$ to form $\angle W'X'Y'$. What is the measure of $\angle W'X'Y'$?



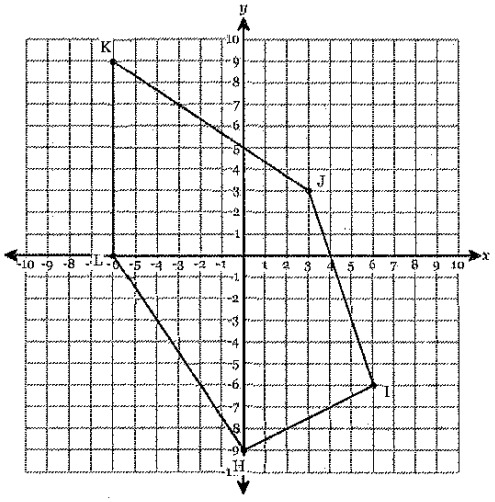

**126.** The figure below is dilated by a factor of $2$ centered at the origin. Plot the resulting image.



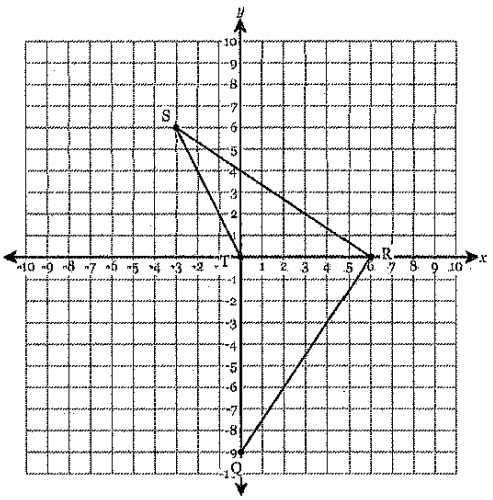
**127.** The figure below is dilated by a factor of $\frac{3}{4}$ centered at the origin. Plot the resulting image.



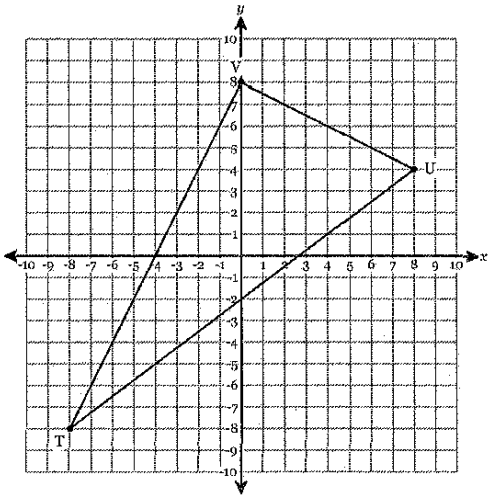

**128.** The figure below is dilated by a factor of $\frac{1}{3}$ centered at the origin. Plot the resulting image.




**129.** The figure below is dilated by a factor of $\frac{2}{3}$ centered at the origin. Plot the resulting image.




**130.** The figure below is dilated by a factor of $\frac{1}{4}$ centered at the origin. Plot the resulting image.




**131.** Solve for a.

$$10 = a + 10$$

**132.** Solve for w.

$$8 = w + 10$$

**133.** Solve for s.

$$9 = -4 + s$$

**134.** Solve for t. You must write your answer in fully simplified form.

$$6 = -15t$$

**135.** Solve for u. You must write your answer in fully simplified form.

$$9u = 5$$

**136.** Solve for r. You must write your answer in fully simplified form.

$$15r = -18$$

**137.** Solve for t.

$$9 = \frac{t}{9}$$

**138.** Solve for x.

$$5 = \frac{x}{-10}$$

**139.** Solve for s.

$$3 = \frac{s}{-5}$$

**140.** Solve for $r$ and simplify your answer.

$$15 = -\frac{3}{2}r$$

**141.** Solve for $n$ and simplify your answer.

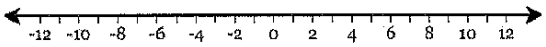
$$-\frac{5}{3}n = 1$$

**142.** Solve for $w$ and simplify your answer.

$$\frac{5}{4}w = 14$$

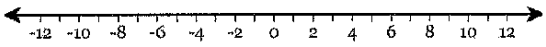
**143.** Solve for $x$ and graph the solution on the number line below.

$$0 < -9x$$



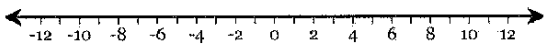

**144.** Solve for $x$ and graph the solution on the number line below.

$$x - 12 \leq -11$$




**145.** Solve for $x$ and graph the solution on the number line below.

$$9x \geq -72$$




**146.** A cylinder has a base diameter of 16 feet and a height of 4 feet. What is its volume in cubic feet, *to the nearest tenths place*?

**147.** A cylinder has a base radius of 8 meters and a height of 19 meters. What is its volume in cubic meters, *to the nearest tenths place?*

**148.** What is the volume, in cubic cm, of a cylinder with a height of 8cm and a base radius of 7cm, *to the nearest tenths place*?

**149.** Find the volume of a right circular cone that has a height of 19.4 cm and a base with a diameter of 9.9 cm. Round your answer to the nearest tenth of a cubic centimeter.

**150.** Find the volume of a right circular cone that has a height of 6.6 cm and a base with a radius of 14.7 cm. Round your answer to the nearest tenth of a cubic centimeter.

**151.** Find the volume of a right circular cone that has a height of 2.1 m and a base with a diameter of 13.7 m. Round your answer to the nearest tenth of a cubic meter.

**152.** What is the volume of a hemisphere with a diameter of 51.8 in, rounded to the *nearest tenth* of a cubic inch?

**153.** What is the volume of a hemisphere with a radius of 4.9 ft, rounded to the *nearest tenth* of a cubic foot?

**154.** What is the volume of a sphere with a diameter of 3.6 ft, rounded to the *nearest tenth* of a cubic foot?

**155.** What is the volume of a cylinder with a height of 18.5 m and a base with a diameter of 5.2 m, *to the nearest tenth* of a cubic meter?

**156.** What is the volume of a sphere with a radius of 30.5 cm, rounded to the *nearest tenth* of a cubic centimeter?

**157.** Find the volume of a right circular cone that has a height of 5.6 ft and a base with a radius of 9.4 ft. Round your answer to the nearest tenth of a cubic foot.

**158.** Find the volume of a cube with a side length of 17.7 in, to the *nearest tenth* of a cubic inch (if necessary).

**159.** A random sample of people were surveyed on their favorite sport, as shown in the table below sorted by the respondent's age.

Favorite Sport

| | Basketball | Football | Soccer | Baseball | Other/Hate Sports | Total |
|---|---|---|---|---|---|---|
| **under 21** | 7 | 7 | 9 | 9 | 10 | 42 |
| **21-34** | 10 | 5 | 5 | 9 | 8 | 37 |
| **35-54** | 8 | 10 | 5 | 7 | 10 | 40 |
| **55 and older** | 8 | 10 | 7 | 8 | 9 | 42 |
| **Total** | 33 | 32 | 26 | 33 | 37 | 161 |

How many people prefer football?

**160.** A random sample of students was surveyed and asked to list their grade level and whether or not they have a pet. Results are shown in the table below.

Pets Survey

| | Pets | No Pets |
|---|---|---|
| **6th grade** | 12 | 23 |
| **7th grade** | 26 | 18 |
| **8th grade** | 24 | 24 |

How many 8th graders have a pet?

**161.** A survey asked a random sample students if they estimated they spent more or less than an hour a day on social media.

Social Media

| | More | Less | Total |
|---|---|---|---|
| **7th grade** | 29 | 20 | 49 |
| **8th grade** | 16 | 17 | 33 |
| **Total** | 45 | 37 | 82 |

How many 7th graders estimated they spend more than an hour a day on social media?

**162.** A random sample of people were surveyed on their favorite sport, as shown in the table below sorted by the respondent's age.

Favorite Sport

| | Basketball | Football | Soccer | Baseball | Other/Hate Sports | Total |
|---|---|---|---|---|---|---|
| **under 21** | 6 | 9 | 9 | 9 | 6 | 39 |
| **21-34** | 6 | 9 | 7 | 10 | 9 | 41 |
| **35-54** | 9 | 9 | 7 | 7 | 7 | 39 |
| **55 and older** | 9 | 6 | 7 | 8 | 10 | 40 |
| **Total** | 30 | 33 | 30 | 34 | 32 | 159 |

What percent of the people between the ages of 35 and 54 prefer football? Round your answer to the nearest whole number percent.

**163.** A random sample of students were surveyed as to how much non-school screen time they had each week (for purposes of the survey, screen time was defined as: time spent online, on social media, watching TV, or playing video games) and if their grade average was above or below 80.

Screen Time

| | above | below |
|---|---|---|
| **less than 4 hours** | 8 | 9 |
| **4-8 hours** | 12 | 10 |
| **8-12 hours** | 20 | 17 |
| **more than 12 hours** | 11 | 17 |

What percent of the students who spend 8-12 hours a week on screens reported a grade average above 80? Round your answer to the nearest whole number percent.

**164.** A survey asked a random sample students if they estimated they spent more or less than an hour a day on social media.

Social Media

| | More | Less | Total |
|---|---|---|---|
| **7th grade** | 18 | 16 | 34 |
| **8th grade** | 11 | 16 | 27 |
| **Total** | 29 | 32 | 61 |

What percent of the 7th graders estimated they spend less than an hour a day on social media? Round your answer to the nearest whole number percent.

**165.** A survey asked a group of adults and youths if they prefer reading books printed on paper or electronic books. Results are shown in the table below, but some values are missing. Fill in the missing values.

Book Preference

| | Print | Electronic | Total |
|---|---|---|---|
| **Youths** | ____ | ____ | ____ |
| **Adults** | ____ | 40 | 66 |
| **Total** | ____ | 63 | 115 |

**166.** A random sample of students was surveyed and asked to list their grade level and whether or not they have a pet. Results are shown in the table below, but some values are missing. Fill in the missing values.

Pets Survey

| | Pets | No Pets | Total |
|---|---|---|---|
| **6th grade** | ____ | 22 | 45 |
| **7th grade** | ____ | 15 | 35 |
| **8th grade** | ____ | ____ | ____ |
| **Total** | 53 | ____ | 104 |

**167.** A survey stopped men and women at random to ask them where they purchased groceries, at a local grocery store or online. Results are shown in the table below, but some values are missing. Fill in the missing values.

Grocery Options

| | Store | Online | Total |
|---|---|---|---|
| **Women** | ____ | 8 | ____ |
| **Men** | ____ | 17 | 53 |
| **Total** | ____ | ____ | 89 |

**168.** A survey stopped men and women at random to ask them where they purchased groceries, at a local grocery store or online. Based on the given information, fill in the missing values in the table below.

- 18 women said they shopped online.
- 43 men were surveyed.
- 71 total people said they shopped at a local grocery store.
- 98 total people were surveyed.

Grocery Options

| | Store | Online | Total |
|---|---|---|---|
| **Women** | ____ | ____ | ____ |
| **Men** | ____ | ____ | ____ |
| **Total** | ____ | ____ | ____ |

**169.** A survey asked a random sample students if they estimated they spent more or less than an hour a day on social media. Based on the given information, fill in the missing values in the table below.

- 21 seventh graders estimated they spent less than an hour.
- 11 eighth graders estimated they spent less than an hour.
- 28 eighth graders were surveyed.
- 78 total students were surveyed.

Social Media

| | More | Less | Total |
|---|---|---|---|
| **7th grade** | ____ | ____ | ____ |
| **8th grade** | ____ | ____ | ____ |
| **Total** | ____ | ____ | ____ |

**170.** A survey stopped men and women at random to ask them where they purchased groceries, at a local grocery store or online. Based on the given information, fill in the missing values in the table below.

- 26 women said they shopped at a local grocery store.
- 32 women were surveyed.
- 29 men said they shopped at a local grocery store.
- 17 total people said they shopped online.

Grocery Options

| | **Store** | **Online** | **Total** |
|---|---|---|---|
| **Women** | _____ | _____ | _____ |
| **Men** | _____ | _____ | _____ |
| **Total** | _____ | _____ | _____ |