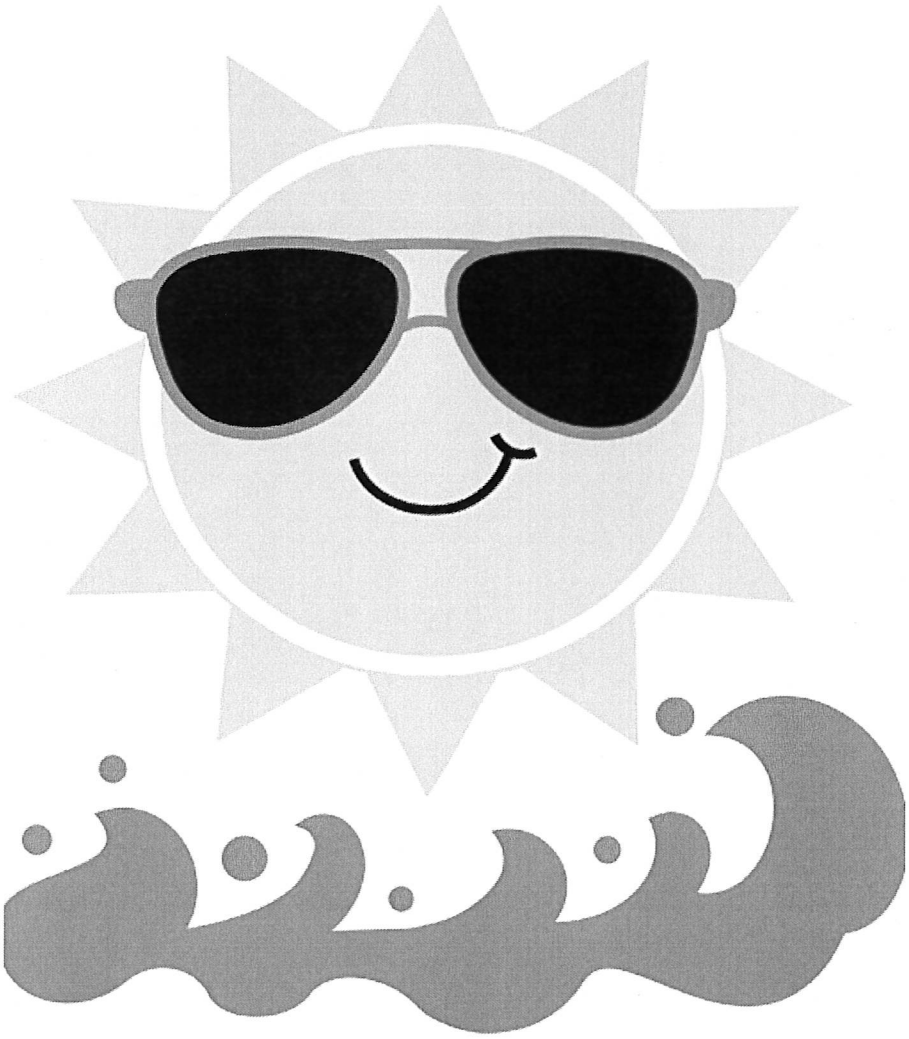
SUMMER MATH PACKET



7th Grade to Algebra

Name: _____

Summer Math Work Expectations (7th grade math to Algebra I)

The materials provided for summer math work are designed as a comprehensive review of key concepts from 8th grade mathematics, for those entering Algebra I. This assignment is intended to help reinforce specific skills to ensure you are prepared for your transition into math for the 2025-2026 school year. Completing these problems will support a smoother start to the school year by refreshing essential topics such as basic math facts, number sense, and problem-solving strategies. Teachers are expecting this practice to be completed by the first day of school.

In addition to completing the summer math packet, it will be to your advantage to have the following memorized:

Divisibility Rules: If you can divide two numbers without a remainder, then the first number is divisible by the second.

Divisibility rules can help you easily decide if a number is divisible by another number.

IS DIVISIBLE BY THE NUMBER IF	
2	Number ends in 0 or is even
3	Sum of Numbers Divisible by 3
4	The last two digits are divisible by 4
5	Ends in 5 or 0
6	it is even and is divisible by 3
7	Double the last digit and subtract it from a number made by the other digits. The result must be divisible by 0 or 7
8	last 3 digits are divisible by 8
9	Sum of the digits are divisible by 9
10	Ends in 0

Multiplication Table facts 1 x 1 through 15 x 15

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
11	22	33	44	55	66	77	88	99	110	121	132	143	154	165
12	24	36	48	60	72	84	96	108	120	132	144	156	168	180
13	26	39	52	65	78	91	104	117	130	143	156	169	182	195
14	28	42	56	70	84	98	112	126	140	154	168	182	196	210
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

Perfect Squares

$1^2 = 1$ $5^2 = 25$ $9^2 = 81$

$2^2 = 4$ $6^2 = 36$ $10^2 = 100$

$3^2 = 9$ $7^2 = 49$ $11^2 = 121$

$4^2 = 16$ $8^2 = 64$ $12^2 = 144$

Perfect Cubes

$1^3 = 1$ $6^3 = 216$

$2^3 = 8$ $7^3 = 343$

$3^3 = 27$ $8^3 = 512$

$4^3 = 64$ $9^3 = 729$

$5^3 = 125$ $10^3 = 1000$

2025 Summer Math: Entering Algebra I **Name:** _____

1. Compute:

$$-9 - 5$$

2. Compute:

$$(-6) + (-7)$$

3. Compute:

$$5 - (-6)$$

4. Look at the expression below. Do not solve. State if the answer would be positive, negative, or zero, and explain why.

$$-8 \div -3$$

The answer would be _____ (word bank 1) because this is a _____ (word bank 2) problem and _____ (word bank 3).

This word bank also applies to questions 5 - 6.

Word bank 1: **(a)** positive, **(b)** negative, **(c)** zero

Word bank 2: **(a)** multiplication, **(b)** addition, **(c)** subtraction, **(d)** division

Word bank 3: **(a)** zero divided by anything is zero, **(b)** one number is positive and one number is negative, **(c)** both numbers are positive, **(d)** anything times zero is zero, **(e)** both numbers are negative

5. Look at the expression below. Do not solve. State if the answer would be positive, negative, or zero, and explain why.

$$10 \div -15$$

The answer would be _____ (word bank 1) because this is a _____ (word bank 2) problem and _____ (word bank 3).

6. Look at the expression below. Do not solve. State if the answer would be positive, negative, or zero, and explain why.

$$0 \div 14$$

The answer would be _____ (word bank 1) because this is a _____ (word bank 2) problem and _____ (word bank 3).

7. Simplify the expression below using order of operations.

$$\left[(-5 + (-1)) \times (-7 \times (-3))^{1}\right] + (-8) - 7$$

8. Simplify the expression below using order of operations.

$$\left(6^2 + 10 + 4^3\right) - 8$$

9. Simplify the expression below using order of operations.

$$\frac{4-(-1)^2}{-1+2} \times \frac{9^2-1}{-4-4}$$

10. Simplify the expression below using order of operations.

$$\left(-9+(-8)^2 \times (-2)\right) - 1 + 10$$

11. Simplify the expression below using order of operations.

$$\frac{2-6}{8+(-7)} - \frac{5-5}{(-5)^3-4}$$

12. Simplify the expression below using order of operations.

$$4-(-7) \times ((-10)+2^2)$$

13. Simplify the expression below using order of operations.

$$-6 - \frac{(-3)^2}{8-(-1)^1}$$

14. Simplify the expression below using order of operations.

$$4+5 \times 2-(-5)^2$$

15. Simplify the expression below using order of operations.

$$-6^2 \div (-2) - (-4) + (-10)$$

16. Identify the greatest common factor of 44 and $11cz$.

17. Identify the greatest common factor of $10byz$ and $40cz$.

18. Identify the greatest common factor of 25 and $25y$.

19. Identify the greatest common factor of $24w$ and 45.

20. Determine if 0.5 is rational or irrational and give a reason for your answer.

The number 0.5 is _____ because
word bank 1

_____
word bank 2

This word bank also applies to questions 21 - 29.

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

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

21. Determine if $\sqrt{64}$ is rational or irrational and give a reason for your answer.

The number $\sqrt{64}$ is _____ because
word bank 1

_____
word bank 2

22. Determine if $\sqrt{49}$ is rational or irrational and give a reason for your answer.

The number $\sqrt{49}$ is _____ because
word bank 1

_____
word bank 2

23. Determine if $0.686886888688886888886...$ is rational or irrational and give a reason for your answer.

The number $0.686886888688886888886...$ is

_____ because
word bank 1

_____
word bank 2

24. Determine if $\sqrt{81}$ is rational or irrational and give a reason for your answer.

The number $\sqrt{81}$ is _____ because
word bank 1

_____
word bank 2

25. Determine if $0.989889888988889888889...$ is rational or irrational and give a reason for your answer.

The number $0.989889888988889888889...$ is

_____ because
word bank 1

_____
word bank 2

26. Determine if $0.053053053053053...$ is rational or irrational and give a reason for your answer.

The number $0.053053053053053...$ is _____
word bank 1

because

_____
word bank 2

27. Determine if $\sqrt{81}$ is rational or irrational and give a reason for your answer.

The number $\sqrt{81}$ is _____ because
word bank 1

_____
word bank 2

28. Determine if $0.95929409956639...$ is rational or irrational and give a reason for your answer.

The number $0.95929409956639...$ is _____
word bank 1

because

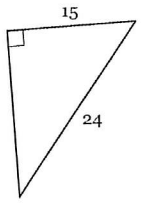
_____
word bank 2

29. Determine if $\sqrt{53}$ is rational or irrational and give a reason for your answer.

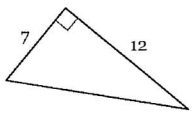
The number $\sqrt{53}$ is _____ because
word bank 1

_____
word bank 2

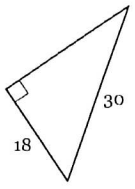
30. Find the length of the third side. If necessary, round to the nearest tenth.



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



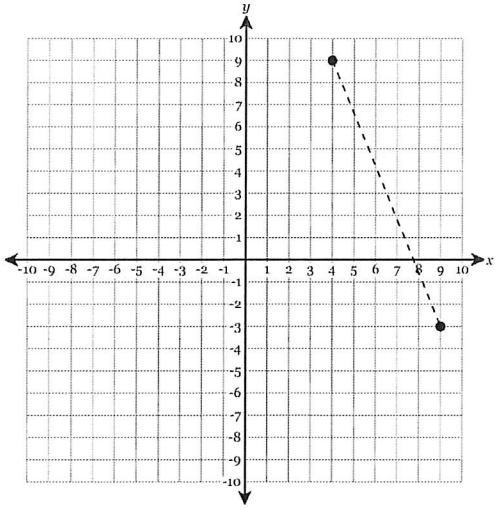
32. Find the length of the third side. If necessary, round to the nearest tenth.



33. One of the legs of a right triangle measures 3 cm and its hypotenuse measures 10 cm. Find the measure of the other leg. If necessary, round to the nearest tenth.

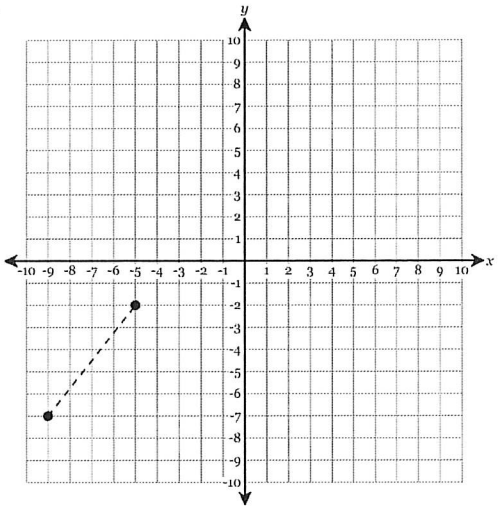
34. One of the legs of a right triangle measures 14 cm and the other leg measures 2 cm. Find the measure of the hypotenuse. If necessary, round to the nearest tenth.

35. Graph a right triangle with the points $(4, 9)$ and $(9, -3)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



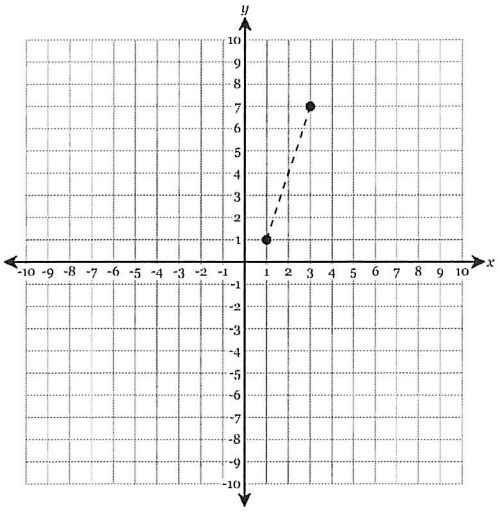
Leg 1: _____ Leg 2: _____ Distance: _____

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



Leg 1: _____ Leg 2: _____ Distance: _____

37. Graph a right triangle with the points $(3, 7)$ and $(1, 1)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).



Leg 1: _____ Leg 2: _____ Distance: _____

38. Rewrite in simplest terms:
$(4x + 4y) + (-6x + 5y)$

39. Rewrite in simplest terms:
$(-5x + 6y) - (-5x + 4y)$

40. Find an expression which represents the sum of $(-3x - 7)$ and $(-2x + 3)$ in simplest terms.

41. Find an expression which represents the difference when $(4x - 8)$ is subtracted from $(-9x + 7)$ in simplest terms.

42. Use the distributive property to write an equivalent expression.

$$9(8n + 2p)$$

43. Use the distributive property to write an equivalent expression.

$$9(y + 10)$$

44. Use the distributive property to write an equivalent expression.

$$7(6s - 7t + 4)$$

45. Use the distributive property to write an equivalent expression.

$$5(6x + 3y - 6)$$

46. Which expression is equivalent to the expression below?

$$k + k + k + k + k + k + k + m + m + m$$

A. $10km$ B. 10

C. $7k + 3m$ D. $10 + k + m$

47. Which expression is equivalent to the expression below?

$$n + n + n + n + n + n + n$$

A. n^7 B. $7 + n$ C. $7n$ D. 7

48. Which pair of expressions below are equivalent?

A. $6r + 3r$ and $9r^2$

B. $6(3r - 8)$ and $18r - 48$

C. $6r - 3s$ and $3s - 6r$

D. $6(3r - 8)$ and $18r - 8$

49. Which expression is equivalent to the expression below?

$$8t + 2v + t + t$$

A. $6t + 2v$ B. $12t$

C. $8t$ D. $10t + 2v$

50. Which expression is equivalent to the expression below?

$$2(3t) + 8t$$

A. $22t$ B. $6t + 3t^2$ C. $14t$ D. $11t + 2$

51. Rewrite in simplest terms:
$-8(6m + 7n) - 2n - 10(-7n - 8m)$

52. Rewrite in simplest terms: $-3r - 10(-3r - 10)$

53. Rewrite in simplest terms: $7(5q + q - 10) - 6q$

54. Rewrite in simplest terms:
$9(-9f - 2) + 3(4f + 4)$

55. Write the number 5.2×10^{-6} in standard form.

56. Write the number 9×10^{5} in standard form.

57. Write the number 5.6×10^{2} in standard form.

58. Write the number 1.7×10^{6} in standard form.

59. Write the number 5.3×10^{-5} in standard form.

60. Write the number 0.00074 in scientific notation.

61. Write the number 150 in scientific notation.

62. Write the number 0.0082 in scientific notation.

63. Write the number 0.0000064 in scientific notation.

64. Write the number 0.081 in scientific notation.

65. What is the product of 3500 and 5.6×10^{4} expressed in scientific notation?

66. What is the quotient of 8.832×10^{6} and 9.6×10^{2} expressed in scientific notation?

67. What is the quotient of 2.538×10^{9} and 2.7×10^{2} expressed in scientific notation?

68. What is the product of 4100 and 4.5×10^{6} expressed in scientific notation?

69. What is the product of 950 and 9.3×10^{2} expressed in scientific notation?

70. The mass of a methane molecule is 1.9×10^{-22} grams. The mass of an electron is 9.11×10^{-28} grams. How many times greater is the mass of a methane molecule than the mass of an electron? Write your answer in standard notation, rounding to the nearest tenth.

71. The approximate areas of Wisconsin and New Hampshire are listed below:

Wisconsin: 1.7×10^{5} square kilometers

New Hampshire: 2.42×10^{4} square kilometers

How many times larger is Wisconsin than New Hampshire? Write your answer in standard notation, rounding to the nearest tenth.

72. How many times greater is 5.98×10^{-7} than 4.6×10^{-8}? Express your answer using either standard notation or scientific notation.

73. How much greater is 3.2×10^{7} than 5.9×10^{4}? Express your answer using either standard notation or scientific notation.

74. 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 G: 3.54×10^{-3} centimeters

Cell H: 4.8×10^{-4} centimeters

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

75. The approximate average distances from the sun to Jupiter and Mercury are listed below:

Jupiter: 7.78×10^{8} kilometers

Mercury: 5.79×10^{7} kilometers

How much farther from the sun is Jupiter? Express your answer using scientific notation.

76. The distance from Venus to Mercury is 5.01×10^{7} kilometers. How long would it take a rocket, traveling at 2.54×10^{4} kilometers per hour to travel from Venus to Mercury? Round your answer to the nearest whole number of hours.

77. Kaylee broke a cell sample into 5 batches, each weighing 5.7×10^{-8} grams. How much did the original sample weigh? Use scientific notation to express your answer.

78. A water park has pools, slides, and rides that, in total, make use of 4.1×10^7 gallons of water. They plan to add a ride that would make use of an additional $17,000$ 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.

79. The approximate areas of Idaho and New Jersey are listed below:

Idaho: 2.16×10^5 square kilometers

New Jersey: 2.26×10^4 square kilometers

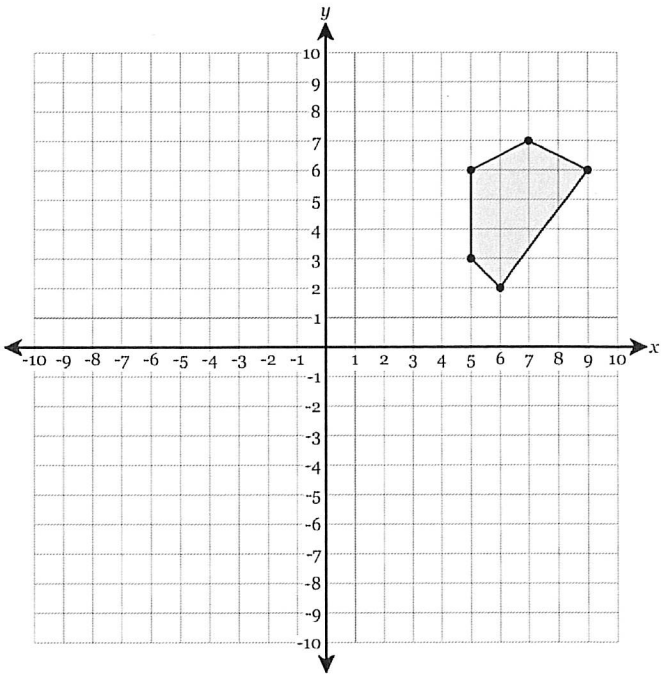
How many times larger is Idaho than New Jersey? Write your answer in standard notation, rounding to the nearest tenth.

80. What is the image point of $(0, -5)$ after a translation right 5 units and up 2 units?

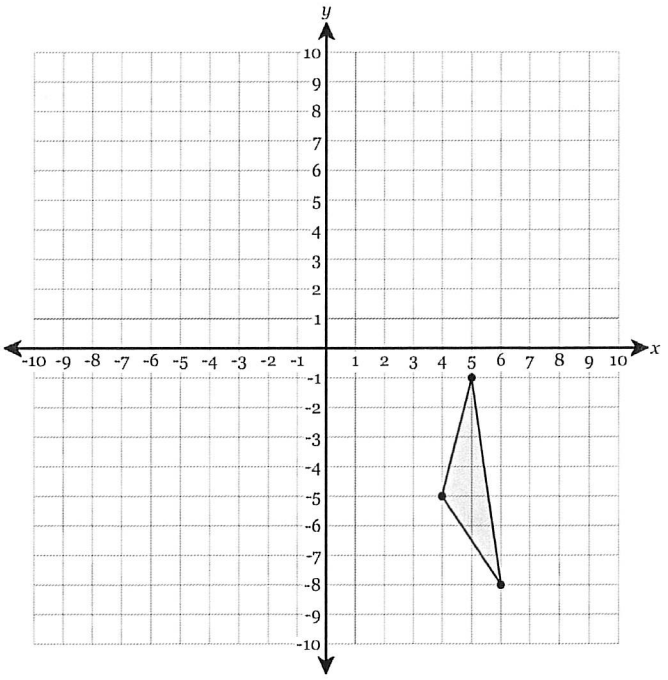
81. What is the image point of $(-7, 4)$ after a translation left 3 units and up 5 units?

82. What is the image point of $(-6, 5)$ after a translation right 2 units and down 4 units?

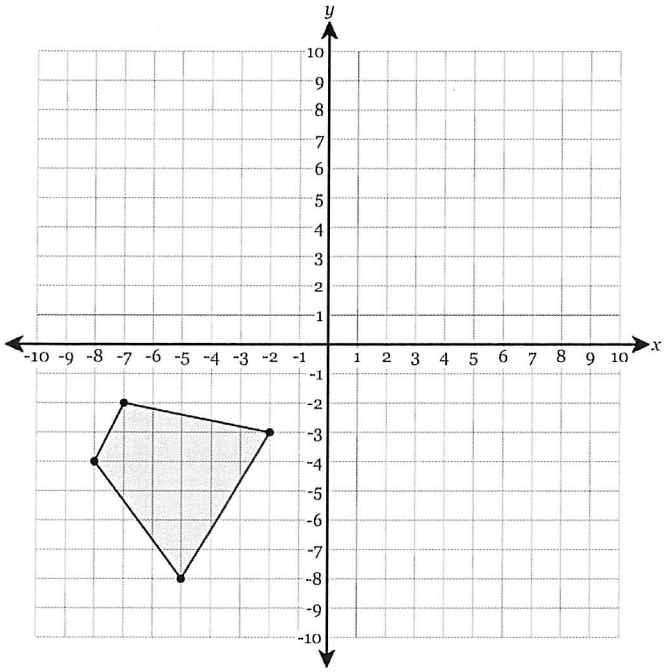
83. Translate the figure 6 units left and 2 units down.



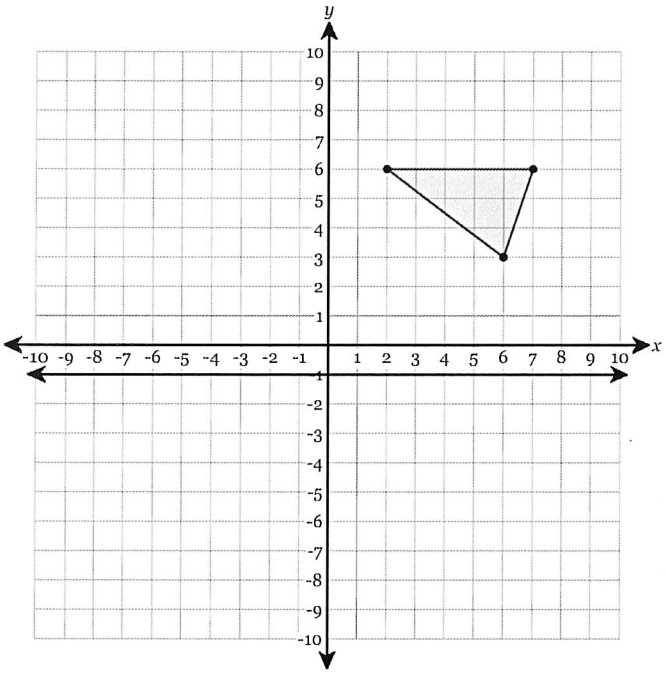
84. Translate the figure 4 units left and 7 units up.



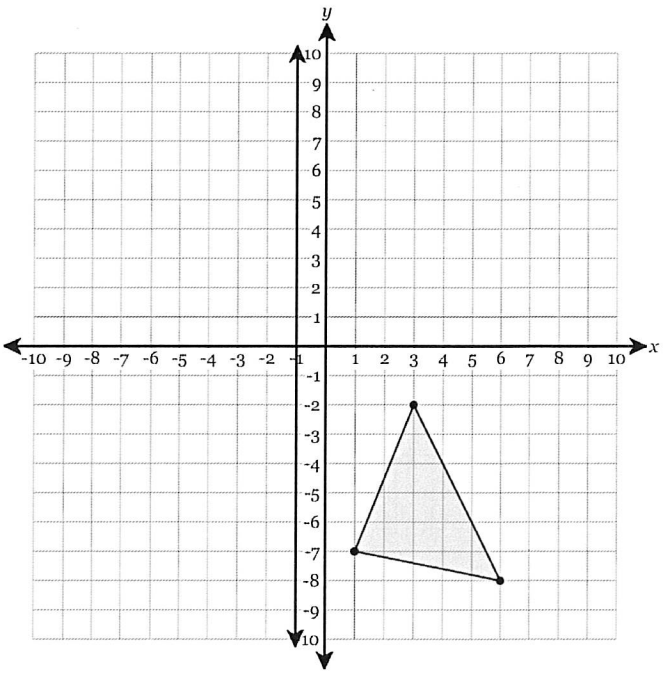
85. Translate the figure 3 units right and 1 unit up.



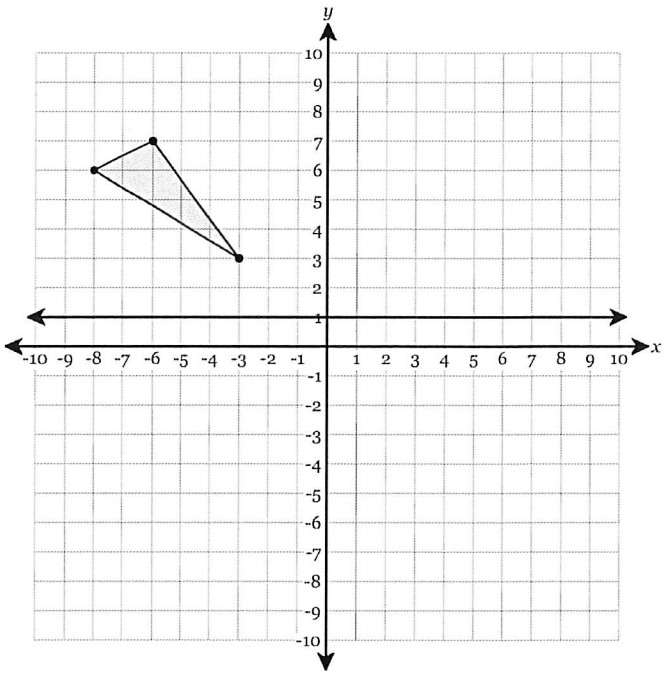
86. Reflect the figure over the line $y = -1$.



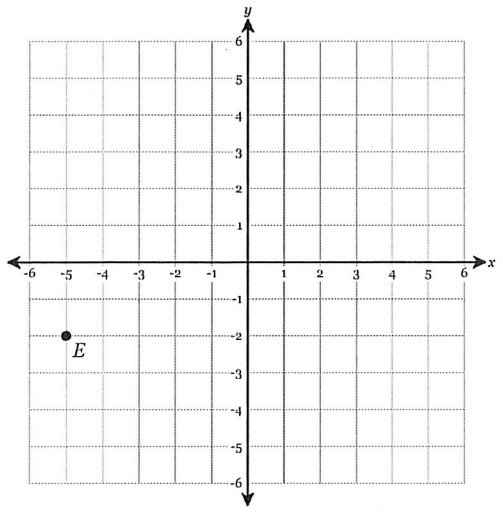
87. Reflect the figure over the line $x = -1$.



88. Reflect the figure over the line $y = 1$.



89. The point E is plotted on the coordinate grid below. Plot the point E', the reflection of E over the x-axis.

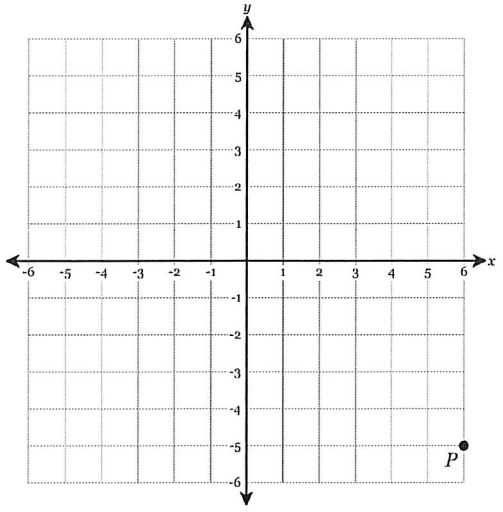


Coordinates of E: $\left(\_\_\_\_\_, \_\_\_\_\_\right)$

Coordinates of E': $\left(\_\_\_\_\_, \_\_\_\_\_\right)$

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

90. The point P is plotted on the coordinate grid below. Plot the point P', the reflection of P over the x-axis.

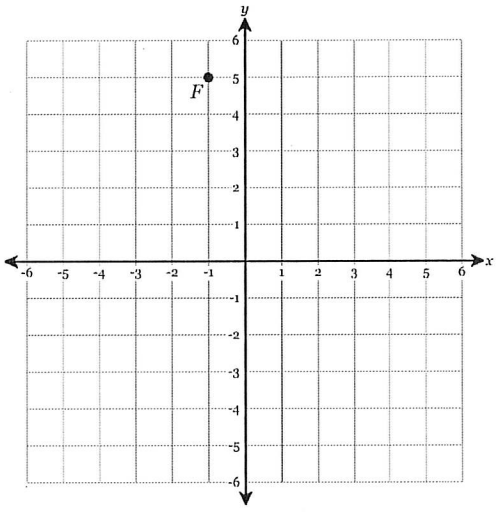


Coordinates of P: $\left(\_\_\_\_\_, \_\_\_\_\_\right)$

Coordinates of P': $\left(\_\_\_\_\_, \_\_\_\_\_\right)$

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

91. The point F is plotted on the coordinate grid below. Plot the point F', the reflection of F over the y-axis.



Coordinates of F: $\left(\_\_\_\_\_, \_\_\_\_\_\right)$

Coordinates of F': $\left(\_\_\_\_\_, \_\_\_\_\_\right)$

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

92. Point V is located at $(-6, -3)$ on the coordinate plane. Point V is reflected over the y-axis to create point V'. Point V' is then reflected over the x-axis to create point V''. What ordered pair describes the location of V''?

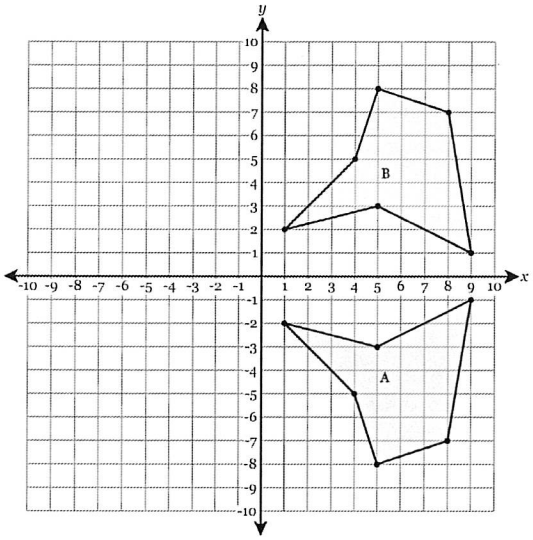
93. Point N is located at $(-3, 3)$ on the coordinate plane. Point N is reflected over the x-axis to create point N'. What ordered pair describes the location of N'?

94. Point G is located at $(-3, -6)$ on the coordinate plane. Point G is reflected over the y-axis to create point G'. Point G' is then reflected over the x-axis to create point G''. What ordered pair describes the location of G''?

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

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

97. Which transformation would take Shape A to Shape B?



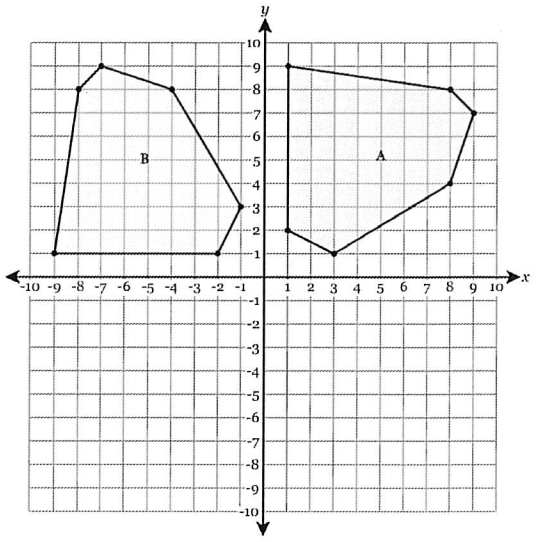
A. A counterclockwise rotation of $90°$ about the origin

B. A reflection over the x-axis

C. A reflection over the y-axis

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

98. Which transformation would take Shape A to Shape B?



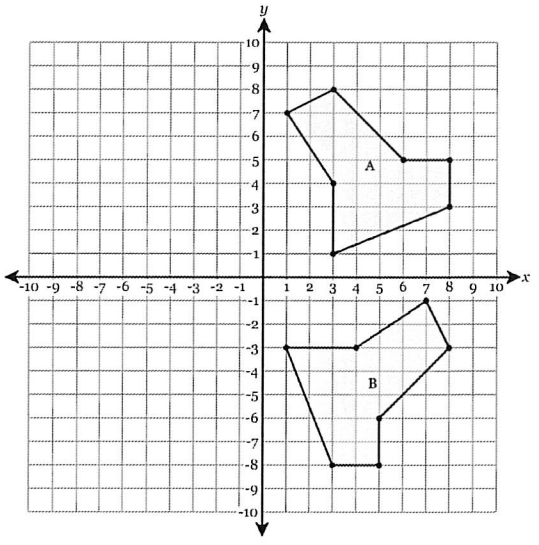
A. A reflection over the y-axis

B. A reflection over the x-axis

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

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

99. Which transformation would take Shape A to Shape B?



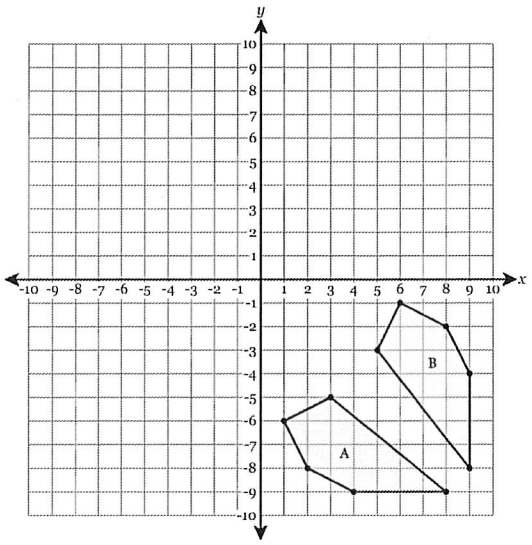
A. A counterclockwise rotation of $90°$ about the origin

B. A reflection over the y-axis

C. A reflection over the x-axis

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

100. Which transformation would take Shape A to Shape B?



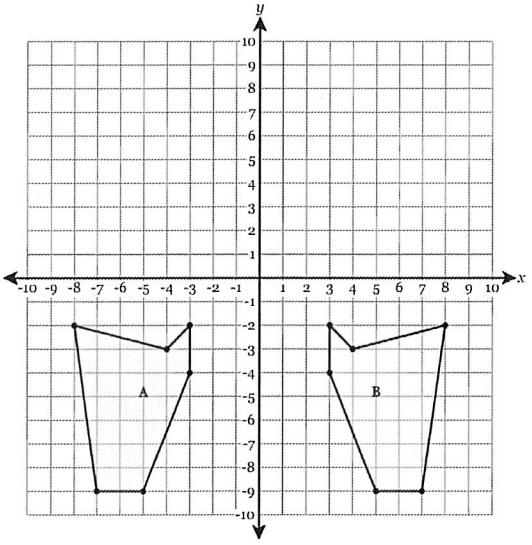
A. A counterclockwise rotation of $180°$ about the origin

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

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

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

101. Which transformation would take Shape A to Shape B?



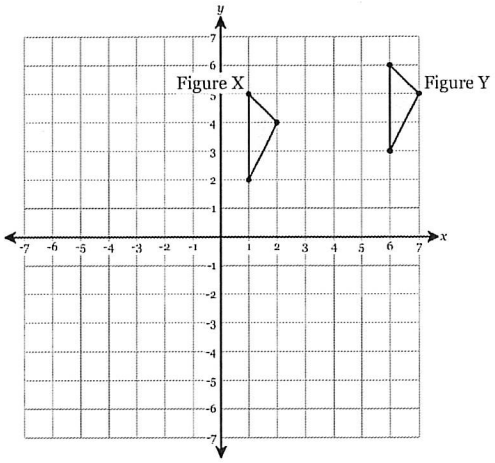
A. A reflection over the x-axis

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

C. A reflection over the y-axis

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

102. Figure Y is the result of a transformation on Figure X. Which transformation would accomplish this?



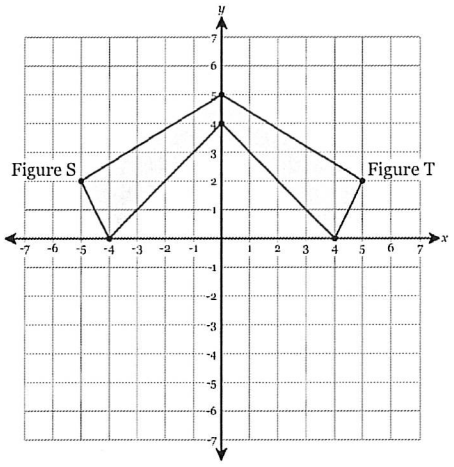
A. A reflection over the y -axis

B. A translation 5 units left and 1 unit down

C. A translation 5 units right and 1 unit up

D. A reflection over the x -axis

103. Figure T is the result of a transformation on Figure S. Which transformation would accomplish this?



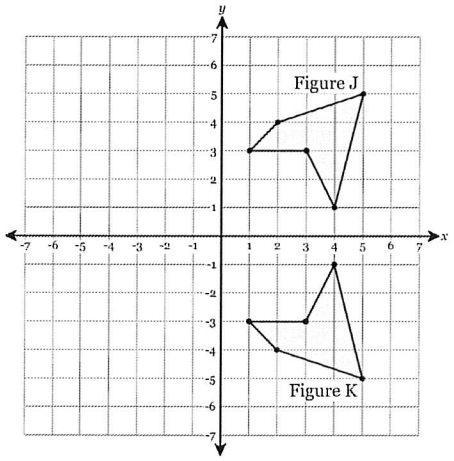
A. A rotation 90° clockwise about the origin

B. A reflection over the y -axis

C. A reflection over the x -axis

D. A rotation 90° counterclockwise about the origin

104. Figure K is the result of a transformation on Figure J. Which transformation would accomplish this?



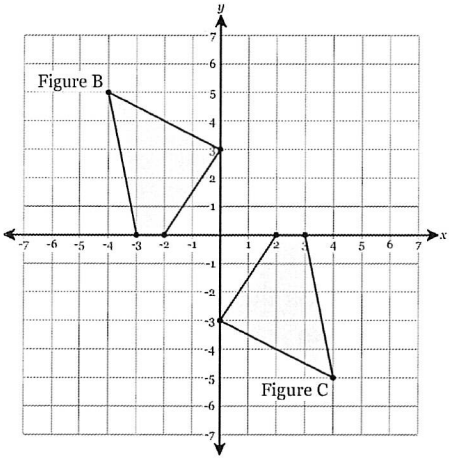
A. A rotation 90° clockwise about the origin

B. A rotation 90° counterclockwise about the origin

C. A reflection over the x -axis

D. A reflection over the y -axis

105. Figure C is the result of a transformation on Figure B. Which transformation would accomplish this?



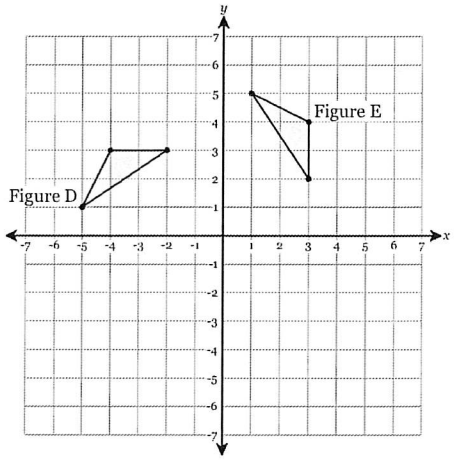
A. A rotation 90° counterclockwise about the origin

B. A rotation 180° counterclockwise about the origin

C. A rotation 90° clockwise about the origin

D. A reflection over the x -axis

106. Figure E is the result of a transformation on Figure D. Which transformation would accomplish this?



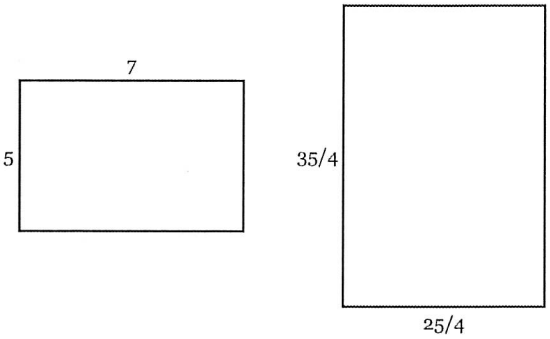
A. A rotation 90° counterclockwise about the origin

B. A rotation 90° clockwise about the origin

C. A rotation 180° clockwise about the origin

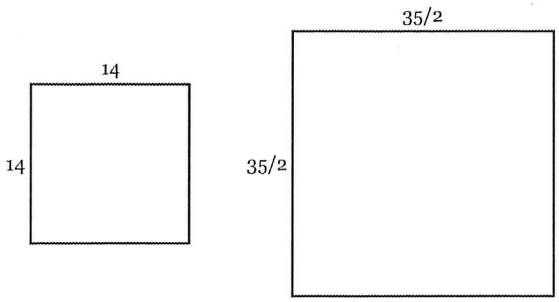
D. A translation 5 units to the right and 1 unit down

107. 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.

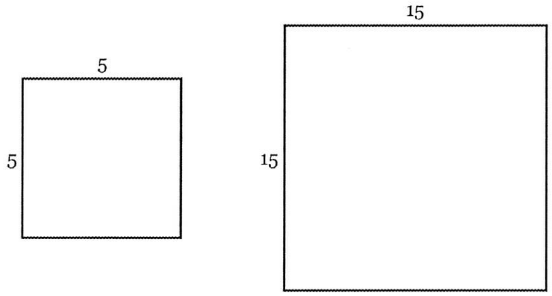


Name: _____

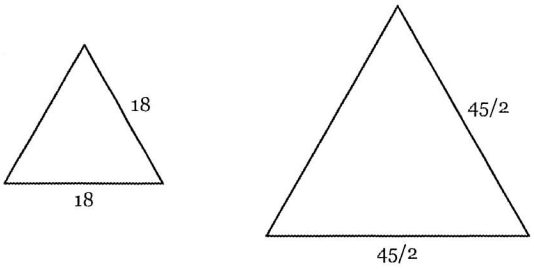
108. The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



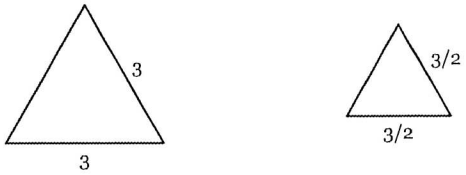
109. The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



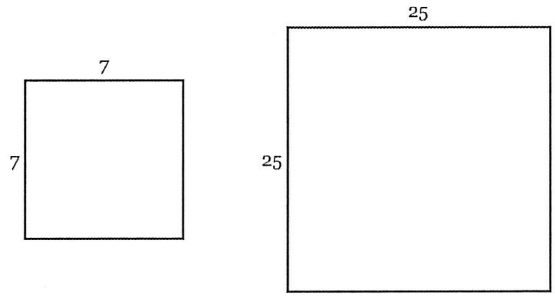
110. The triangle on the right is a scaled copy of the triangle on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



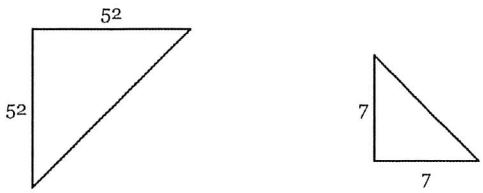
111. The triangle on the right is a scaled copy of the triangle on the left. Identify the scale factor. Express your answer as a whole number or fraction in simplest form.



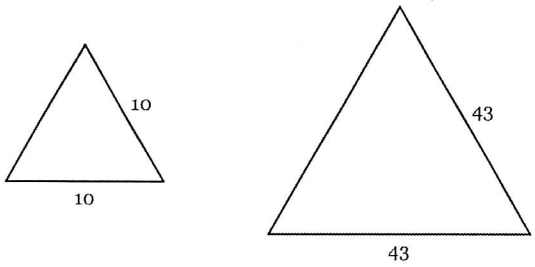
112. The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



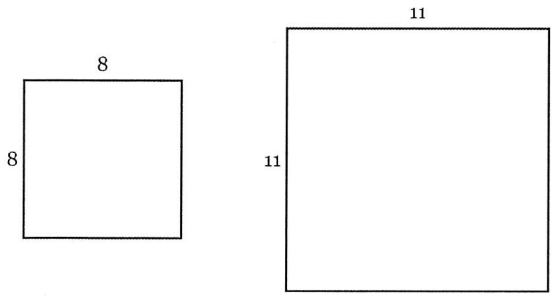
113. The right triangle on the right is a scaled copy of the right triangle on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



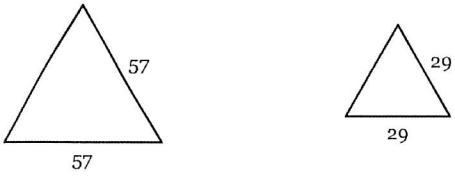
114. The triangle on the right is a scaled copy of the triangle on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



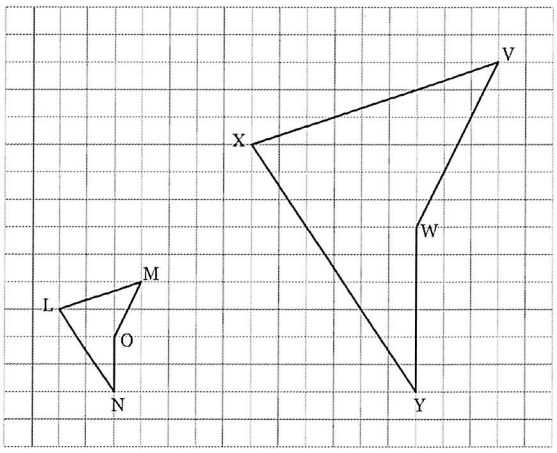
115. The square on the right is a scaled copy of the square on the left. Identify the scale factor. Express your answer as a fraction in simplest form.



116. 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.



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



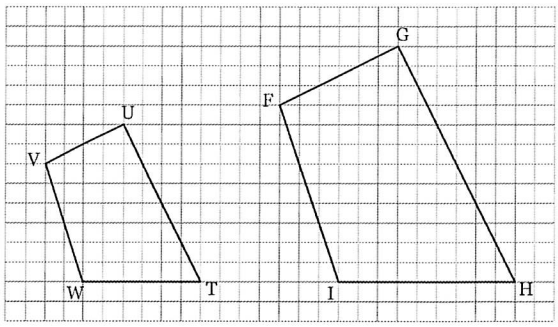
Which side in the figure on the right *corresponds* to segment $\overline{ML}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{YW}$, (b) $\overline{WV}$, (c) $\overline{VX}$, (d) $\overline{XY}$

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

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



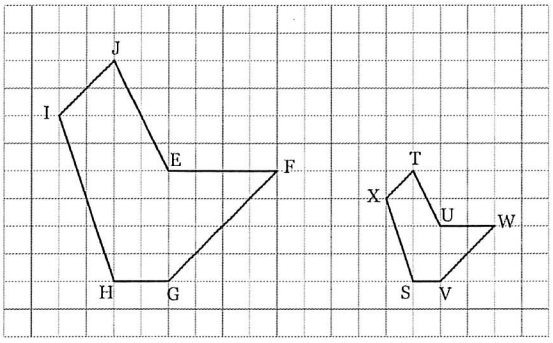
Which side in the figure on the right *corresponds* to segment $\overline{VW}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: (a) $\overline{IH}$, (b) $\overline{HG}$, (c) $\overline{GF}$, (d) $\overline{FI}$

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

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



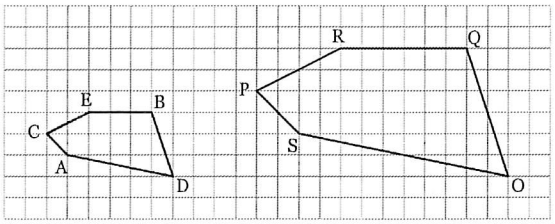
Which side in the figure on the right *corresponds* to segment $\overline{EJ}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: **(a)** $\overline{SV}$, **(b)** $\overline{VW}$, **(c)** $\overline{WU}$, **(d)** $\overline{UT}$, **(e)** $\overline{TX}$, **(f)** $\overline{XS}$

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

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



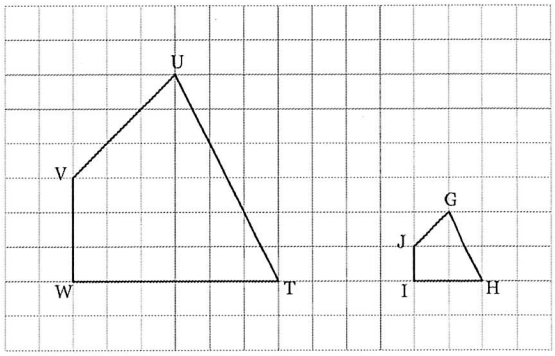
Which side in the figure on the right *corresponds* to segment $\overline{BE}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: **(a)** $\overline{SO}$, **(b)** $\overline{OQ}$, **(c)** $\overline{QR}$, **(d)** $\overline{RP}$, **(e)** $\overline{PS}$

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

121. 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 $\overline{UV}$? _____
word bank 1

What is the scale factor? _____
word bank 2

Word bank 1: **(a)** $\overline{IH}$, **(b)** $\overline{HG}$, **(c)** $\overline{GJ}$, **(d)** $\overline{JI}$

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

122. What is the image of $(0, -8)$ after a dilation by a scale factor of 3 centered at the origin?

123. What is the image of $(-4, -2)$ after a dilation by a scale factor of $\frac{1}{2}$ centered at the origin?

124. What is the image of $(-8, -12)$ after a dilation by a scale factor of $\frac{1}{2}$ centered at the origin?

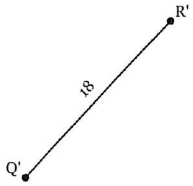
125. What is the image of $(-3, -3)$ after a dilation by a scale factor of $\frac{1}{3}$ centered at the origin?

126. What is the image of $(-9, -9)$ after a dilation by a scale factor of $\frac{1}{3}$ centered at the origin?

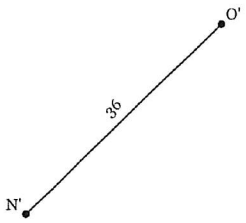
127. $\overline{WX}$ is dilated by a scale factor of 2 to form $\overline{W'X'}$. $\overline{W'X'}$ measures 60. What is the measure of $\overline{WX}$?

128. A figure containing $\angle IJK$ is dilated by a scale factor of $\frac{3}{4}$ to form a new figure which contains $\angle I'J'K'$. $\angle I'J'K'$ measures $79°$. What is the measure of $\angle IJK$?

129. The segment below is the image of $\overline{QR}$ after dilation by a scale factor of 6.What is the measure of $\overline{QR}$?

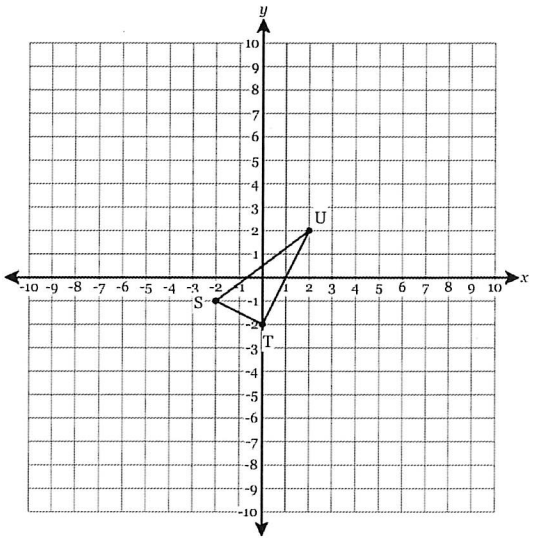


130. The segment below is the image of $\overline{NO}$ after dilation by a scale factor of 4.What is the measure of $\overline{NO}$?

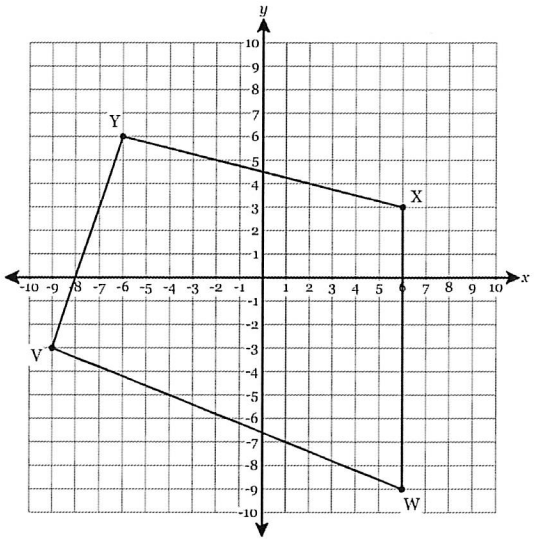


131. $\overline{LM}$ is dilated by a scale factor of 4 to form $\overline{L'M'}$. $\overline{L'M'}$ measures 56. What is the measure of $\overline{LM}$?

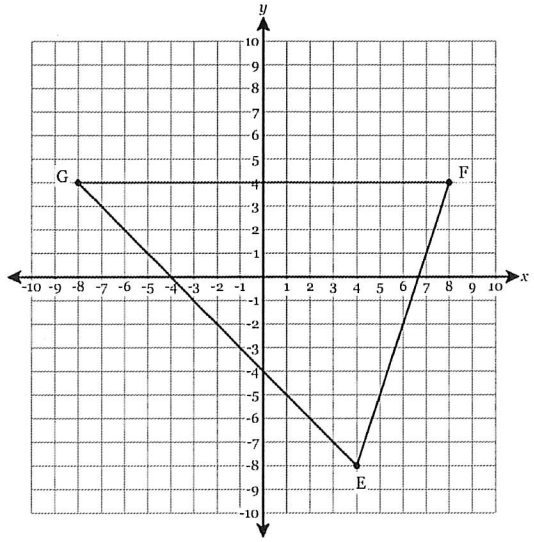
132. The figure below is dilated by a factor of 4 centered at the origin. Plot the resulting image.



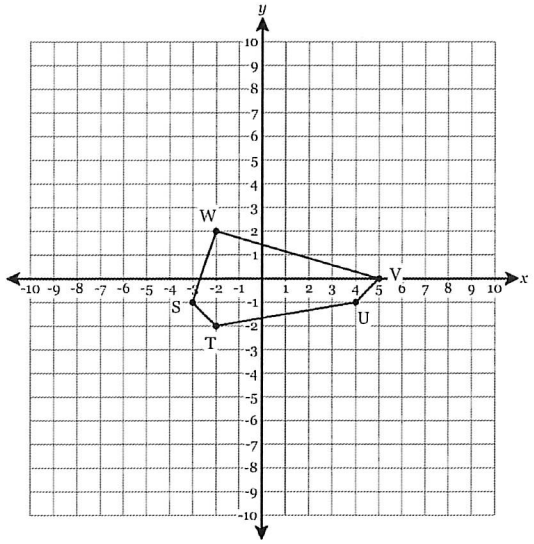
133. The figure below is dilated by a factor of $\frac{1}{3}$ centered at the origin. Plot the resulting image.



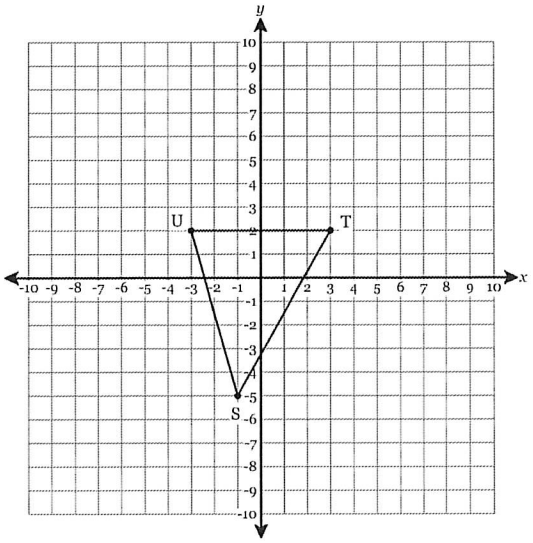
134. The figure below is dilated by a factor of $\frac{3}{4}$ centered at the origin. Plot the resulting image.



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



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



137. Solve for c.

$$-7 = c + 9$$

138. Solve for x.

$$x - 10 = -3$$

139. Solve for t.

$$t - 2 = 7$$

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

$$3t = -18$$

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

$$5r = 18$$

142. Solve for s. You must write your answer in fully simplified form.

$$-3s = 19$$

143. Solve for w.

$$-7 = \frac{w}{3}$$

144. Solve for u.

$$2 = \frac{u}{7}$$

145. Solve for n.

$$6 = \frac{n}{-9}$$

146. Solve for w and simplify your answer.

$$1 = -\frac{2}{5}w$$

147. Solve for s and simplify your answer.

$$-3 = \frac{5}{2}s$$

148. Solve for y and simplify your answer.

$$-11 = \frac{2}{3}y$$

149. Solve for c.

$$8 = -3c + 29$$

150. Solve for c.

$$-6c + 36 = -48$$

151. Solve for a.

$$30 = 26 - \frac{a}{6}$$

152. Solve for b.

$$22 = \frac{b}{2} - 2$$

153. Solve for x:

$$-3x + 2 = x - 22$$

154. Solve for x:

$$-9x - 4 = -4x + 21$$

155. Solve for x:

$$-x + 6 = 4x + 21$$

156. Determine whether the equation $-x = 1$ has a one solution, no solutions, or an infinite number of solutions. Afterwards, determine two values of x that support your conclusion.

The equation has (one / infinite / no) solution(s).
If one solution, find one value that make the equation true and another that makes it false. If infinite solutions, find two values that make the equation true. If no solutions, find two values that make the equation false.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

157. Determine whether the equation $\frac{26}{x} = 0$ has a one solution, no solutions, or an infinite number of solutions. Afterwards, determine two values of x that support your conclusion.

The equation has (one / infinite / no) solution(s).
If one solution, find one value that make the equation true and another that makes it false. If infinite solutions, find two values that make the equation true. If no solutions, find two values that make the equation false.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

158. Determine whether the equation $\frac{26}{x} = 2$ has a one solution, no solutions, or an infinite number of solutions. Afterwards, determine two values of x that support your conclusion.

The equation has (one / infinite / no) solution(s).
If one solution, find one value that make the equation true and another that makes it false. If infinite solutions, find two values that make the equation true. If no solutions, find two values that make the equation false.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

159. Determine whether the equation $x - 8 = -8 + x$ has a one solution, no solutions, or an infinite number of solutions. Afterwards, determine two values of x that support your conclusion.

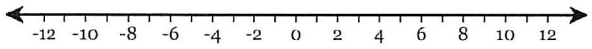
The equation has (one / infinite / no) solution(s).
If one solution, find one value that make the equation true and another that makes it false. If infinite solutions, find two values that make the equation true. If no solutions, find two values that make the equation false.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

A value of x that makes the equation (true / false) is _____, which when substituted into the equation and simplified makes the equation turn into _____ = _____.

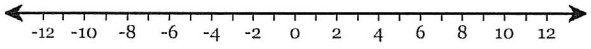
160. Solve for x and graph the solution on the number line below.

$$-4 > \frac{x}{2}$$



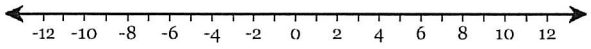
161. Solve for x and graph the solution on the number line below.

$$x - 8 < 3$$



162. Solve for x and graph the solution on the number line below.

$$-6x < 54$$



163. State all integer values of x in the interval $3 \leq x \leq 10$ that satisfy the following inequality:

$$2x + 5 \leq 14$$

164. Determine the smallest integer value of x in the solution of the following inequality.

$$3x + 9 > -12$$

165. State all integer values of x in the interval $[1, 8]$ that satisfy the following inequality:

$$-3x + 10 < 4$$

166. State all integer values of x in the interval $[-1, 4]$ that satisfy the following inequality:

$$-2x + 9 < 8$$

167. Solve the following inequality for h. Write your answer in simplest form.

$$-10h - 9 \geq h - 2$$

168. Solve the following inequality for w. Write your answer in simplest form.

$$5w - 7 > 9w + 8$$

169. Solve the following inequality for b. Write your answer in simplest form.

$$5b + 10 > 10b - 1$$

170. Solve the following inequality for g. Write your answer in simplest form.

$$2g - 1 \leq g - 5$$

171. Which of the following values are solutions to the inequality $1 - 2x \leq 8$?

I. -2 II. -11 III. -10

A. None B. I only

C. II only D. III only

E. I and II F. I and III

G. II and III H. I, II and III

172. Which of the following values are solutions to the inequality $4 > x + 4$?

I. -2 II. -7 III. 0

A. None B. I only

C. II only D. III only

E. I and II F. I and III

G. II and III H. I, II and III

173. Which of the following values are solutions to the inequality $-2 \leq -8 - x$?

I. 0 II. -6 III. 1

A. None B. I only

C. II only D. III only

E. I and II F. I and III

G. II and III H. I, II and III

174. Which of the following values are solutions to the inequality $5 > -6 - 2x$?

I. 0 II. 2 III. -7

A. None B. I only

C. II only D. III only

E. I and II F. I and III

G. II and III H. I, II and III

175. A cylinder has a base radius of 6 meters and a height of 14 meters. What is its volume in cubic meters, *to the nearest tenths place?*

176. A cylinder has a base diameter of 14 meters and a height of 13 meters. What is its volume in cubic meters, *to the nearest tenths place*?

177. What is the volume, in cubic feet, of a cylinder with a height of 10 feet and a base radius of 10 feet, *to the nearest tenths place*?

178. Find the volume of a right circular cone that has a height of 19.9 cm and a base with a radius of 9.6 cm. Round your answer to the nearest tenth of a cubic centimeter.

179. Find the volume of a right circular cone that has a height of 4.5 ft and a base with a diameter of 19 ft. Round your answer to the nearest tenth of a cubic foot.

180. Find the volume of a right circular cone that has a height of 17.4 m and a base with a diameter of 3.1 m. Round your answer to the nearest tenth of a cubic meter.

181. Find the volume of a right circular cone that has a height of 9.1 m and a base with a circumference of 12.1 m. Round your answer to the nearest tenth of a cubic meter.

182. What is the volume of a sphere with a diameter of 9.3 m, rounded to the *nearest tenth* of a cubic meter?

183. What is the volume of a hemisphere with a radius of 6.5 in, rounded to the *nearest tenth* of a cubic inch?

184. Find the volume of a right circular cone that has a height of 5.2 m and a base with a radius of 15.3 m. Round your answer to the nearest tenth of a cubic meter.

185. Find the volume of a pyramid with a square base, where the side length of the base is 16 in and the height of the pyramid is 22.1 in. Round your answer to the *nearest tenth of a cubic inch.*

186. What is the volume of a cylinder with a height of 16.5 in and a base with a diameter of 17.2 in, *to the nearest tenth* of a cubic inch?

187. Find the volume of a cube with a side length of 2 in, to the *nearest tenth* of a cubic inch (if necessary).

188. 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	Total
6th grade	16	23	39
7th grade	21	27	48
8th grade	16	21	37
Total	53	71	124

How many 6th graders were surveyed?

189. A random sample of students was surveyed and asked to list their grade level and what movie genre they prefer. Results are shown in the table below.

Movie Genre

	Superhero	Comedy	Drama
6th grade	17	16	5
7th Grade	17	12	15
8th Grade	12	17	12

How many 7th graders prefer superhero movies?

190. A survey asked a group of adults and youths if they prefer reading books printed on paper or electronic books.

Book Preference

	Print	Electronic
Youths	37	21
Adults	40	29

What percent of the people surveyed prefer reading printed books? Round your answer to the nearest tenth of a percent.

191. 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	Total
less than 4 hours	8	9	17
4-8 hours	20	13	33
8-12 hours	18	18	36
more than 12 hours	13	20	33
Total	59	60	119

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

192. 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	30	_____	_____
Adults	36	_____	64
Total	_____	_____	127

Name: _____

193. 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	25	16	____
7th grade	____	24	51
8th grade	____	24	44
Total	____	____	____

194. A survey asked a group of adults and youths if they prefer reading books printed on paper or electronic books. Based on the given information, fill in the missing values in the table below.

- 22 youths said they preferred reading books printed on paper.
- 26 youths said they preferred reading electronic books
- 31 adults said they preferred reading books printed on paper.
- 116 total people were surveyed.

Book Preference

	Print	Electronic	Total
Youths	____	____	____
Adults	____	____	____
Total	____	____	____

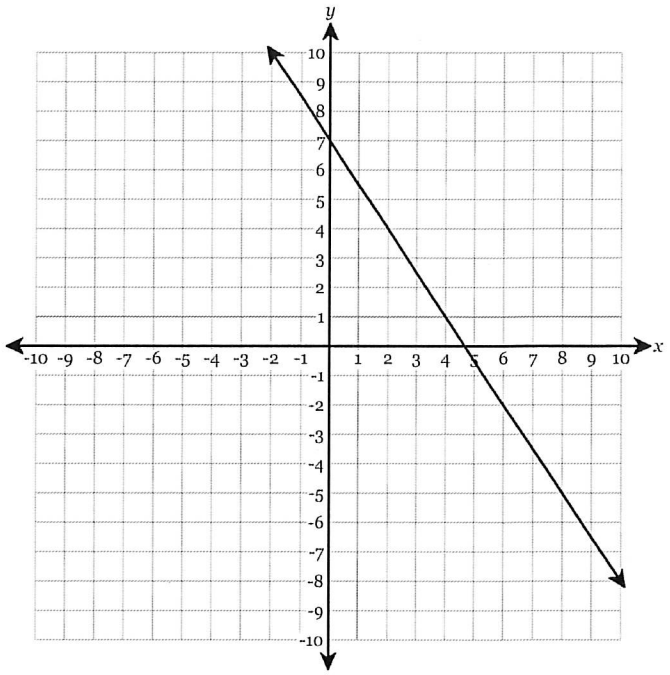
195. A random sample of students was surveyed and asked to list their grade level and whether or not they have a pet. Based on the given information, fill in the missing values in the table below.

- 11 seventh graders said they don't have a pet.
- 41 seventh graders were surveyed.
- 36 eighth graders were surveyed.
- 56 total students said they have pets.

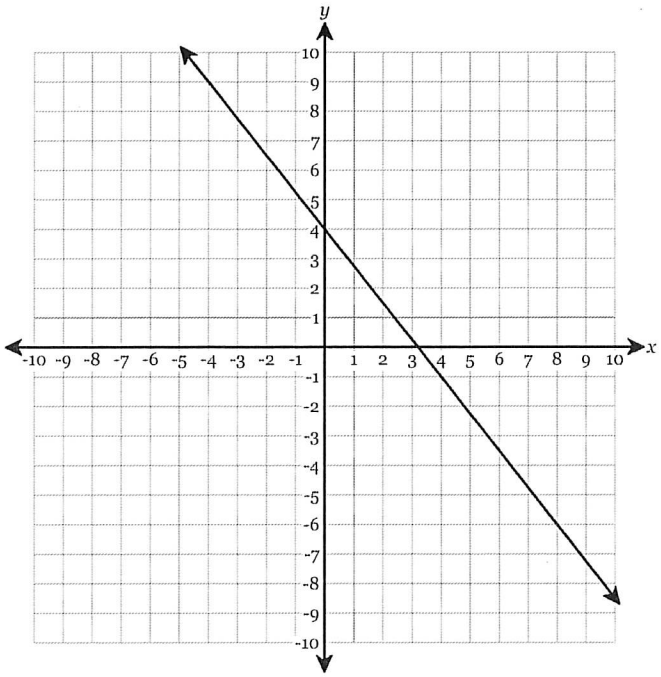
Pets Survey

	Pets	No Pets	Total
7th grade	____	____	____
8th grade	____	____	____
Total	____	____	____

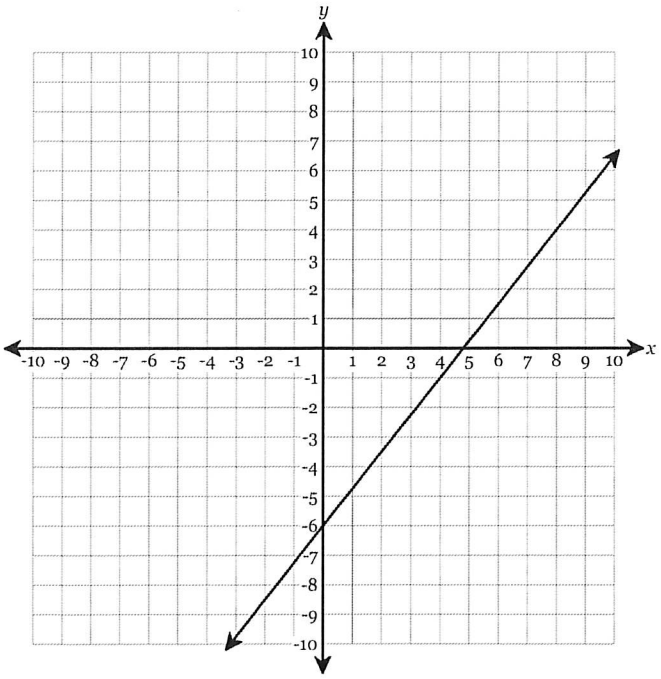
196. Draw a line representing the "rise" and a line representing the "run" of the line. State the slope of the line in simplest form.



197. Draw a line representing the "rise" and a line representing the "run" of the line. State the slope of the line in simplest form.



198. Draw a line representing the "rise" and a line representing the "run" of the line. State the slope of the line in simplest form.



199. What is the slope of the line that passes through the points $(0, 5)$ and $(-4, 5)$? Write your answer in *simplest form.*

200. What is the slope of the line that passes through the points $(7, 3)$ and $(4, 0)$? Write your answer in *simplest form.*

201. What is the slope of the line that passes through the points $(6, 3)$ and $(2, -3)$? Write your answer in *simplest form.*

202. What is the slope of the line that passes through the points $(5, -6)$ and $(4, -6)$? Write your answer in *simplest form.*

203. What is the slope of the line that passes through the points $(9, -5)$ and $(8, -5)$? Write your answer in *simplest form.*

204. Adriel has a bag that contains orange chews, cherry chews, and peach chews. He performs an experiment. Adriel randomly removes a chew from the bag, records the result, and returns the chew to the bag. Adriel performs the experiment 50 times. The results are shown below:

An orange chew was selected 41 times.
A cherry chew was selected 7 times.
A peach chew was selected 2 times.

Based on these results, express the probability that the next chew Adriel removes from the bag will be peach chew as a fraction in simplest form.

205. In a popular online role playing game, players can create detailed designs for their character's "costumes," or appearance. Camila sets up a website where players can buy and sell these costumes online. Information about the number of people who visited the website and the number of costumes purchased in a single day is listed below.

220 visitors purchased no costume.
50 visitors purchased exactly one costume.
2 visitors purchased more than one costume.

Based on these results, express the probability that the next person will purchase no costume as a percent to the nearest whole number.

206. Hannah recorded the grade-level and instrument of everyone in the middle school School of Rock below.

Seventh Grade Students

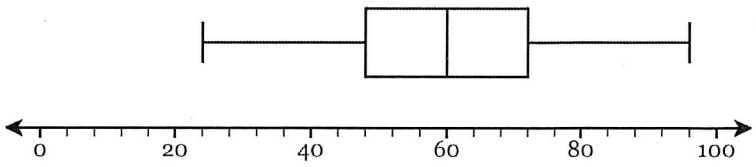
Instrument	# of Students
Guitar	2
Bass	11
Drums	8
Keyboard	13

Eighth Grade Students

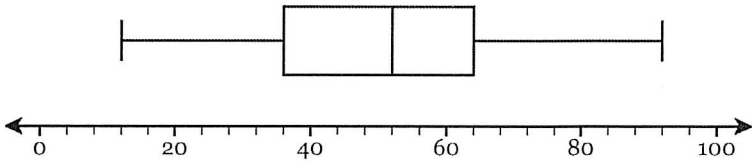
Instrument	# of Students
Guitar	10
Bass	7
Drums	3
Keyboard	11

Based on these results, express the probability that an eighth grader chosen at random will play the guitar as a fraction in simplest form.

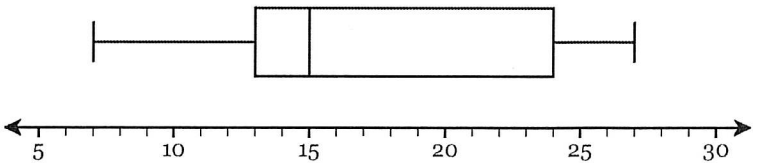
207. The box plot below represents some data set. What is the maximum value of the data?



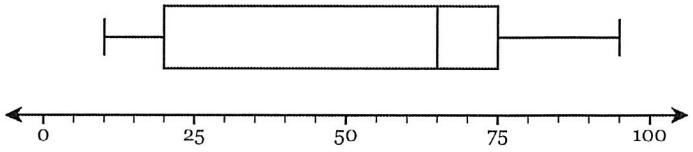
208. The box plot below represents some data set. What is the interquartile range (IQR) of the data?



209. The box plot below represents some data set. What is the range of the data?

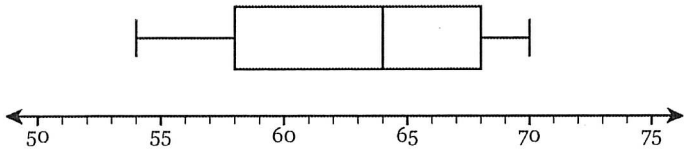


210. The box-and-whisker plot below represents some data set. What is the range of the data?

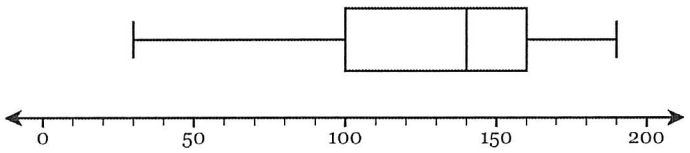


 Name: _____

211. The box-and-whisker plot below represents some data set. What is the maximum value of the data?



212. The box-and-whisker plot below represents some data set. What is the value of the first quartile?



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