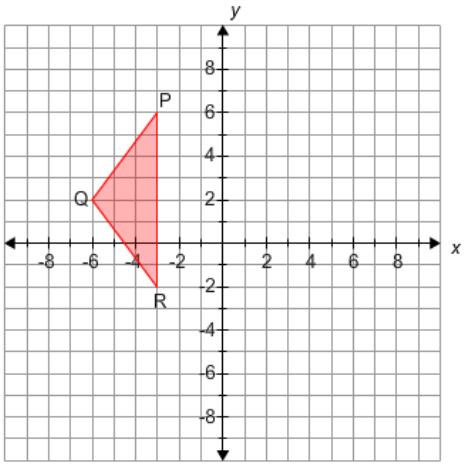
Study Guide Accelerated Benchmark 2

Question 1 . MGSE8.G.1.

Triangle PQR is shown below.



If triangle PQR were reflected across the *y*-axis to create triangle P'Q'R', what would the length of P'R' be?

A. 12 units

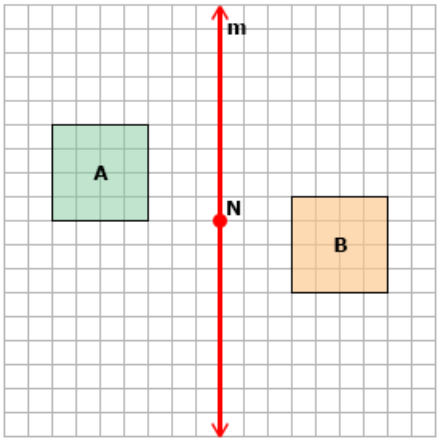
B. 6 units

C. 8 units

D. 10 units

Question 2 . MGSE8.G.1

Which transformation was applied to figure A to form figure B?



A. Figure A was translated 10 units right and 3 units down to form figure B.

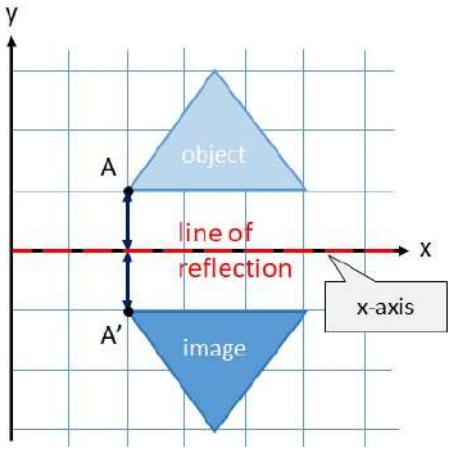
B. Figure A was reflected across the line m to form figure B.

C. Figure A was translated 3 units right and 10 units down to form figure B.

D. Figure A was rotated 90° clockwise about the point N to form figure B.

Question 3 . MGSE8.G.2

Figure B is a reflection of Figure A.



Which of the following is true?

A. Figure B is a dilation.

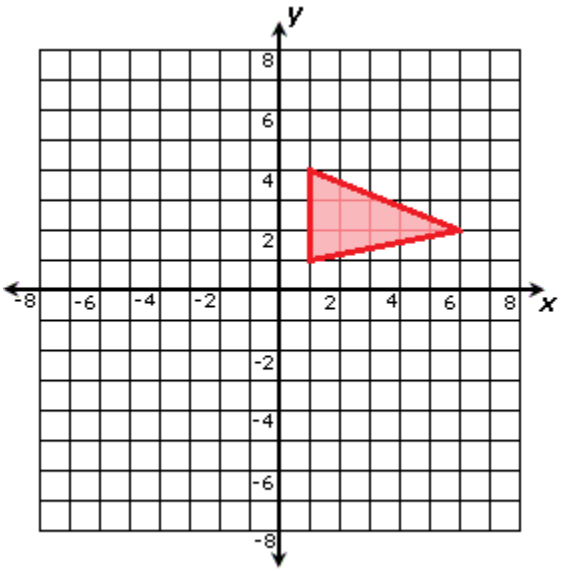
B. The two figures are similar but not congruent.

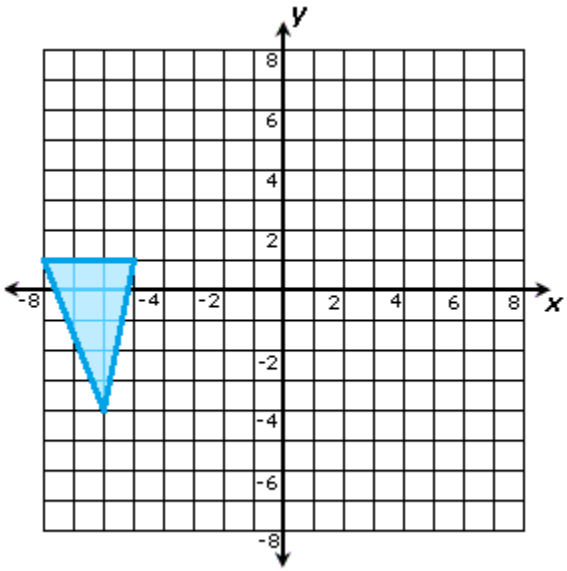
C. The two figures are congruent.

D. Figure A is a translation.

Question 4. MGSE8.G.2

Which of the following best describes the triangles shown below?





A. Triangle 1 and triangle 2 are similar because triangle 2 can be created by rotating, reflecting, and/or translating and dilating triangle 1.

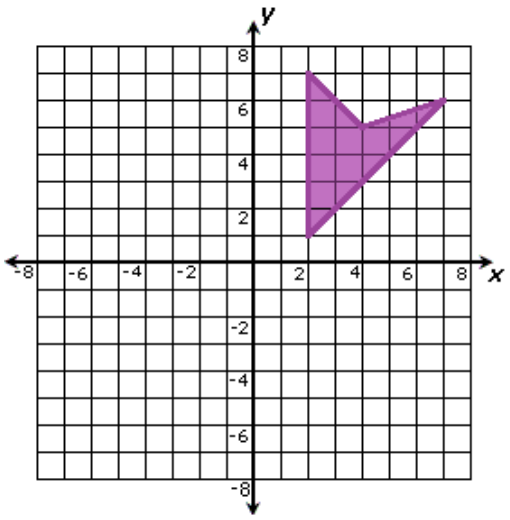
B. Triangle 1 and triangle 2 are similar because triangle 2 can be created by rotating, reflecting, and/or translating triangle 1.

C. Triangle 1 and triangle 2 are congruent because triangle 2 can be created by rotating, reflecting, and/or translating triangle 1.

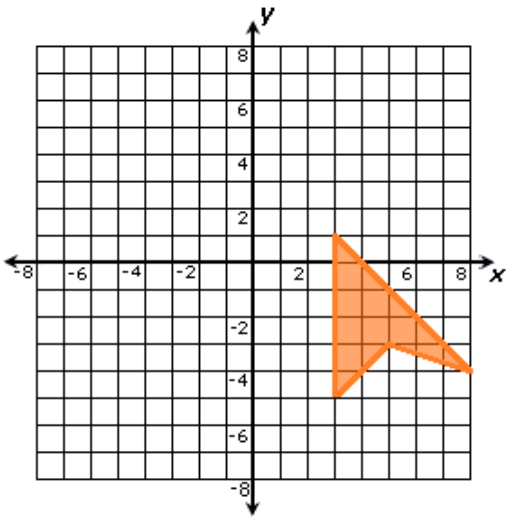
D. Triangle 1 and triangle 2 are congruent because triangle 2 can be created by rotating, reflecting, and/or translating and dilating triangle 1.

Question 5. MGSE8.G.2

Which series of transformations shows that quadrilateral A is congruent to quadrilateral B?



Quadrilateral A



Quadrilateral B

A. Reflect quadrilateral A over the *y*-axis, reflect it over the *x*-axis, and translate it 3 units to the left.

B. Translate quadrilateral A 5 units to the left, rotate it 180° about the point (-3, 1), and reflect it over the *y*-axis.

C. Rotate quadrilateral A 90° clockwise about the origin, reflect it over the *y*-axis, and translate it 5 units to the right.

D. Translate quadrilateral A 5 units up, rotate it 90° clockwise about the point (-3, 1), and reflect it over the *x*-axis.

Question 6.MGSE8.G.3

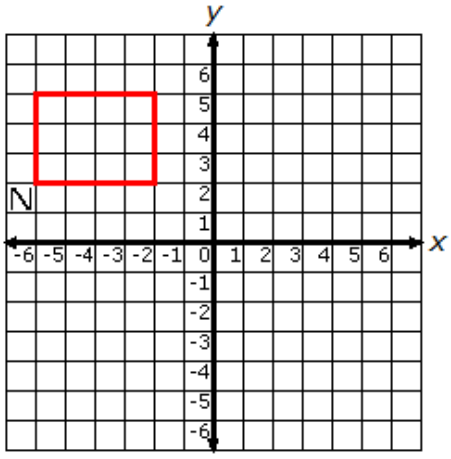
If a translation of the figure above is plotted 8 units to the right and 2 unit down, where will point N' be located on the new figure?

A. (3,-11)

B. (-5,-2)

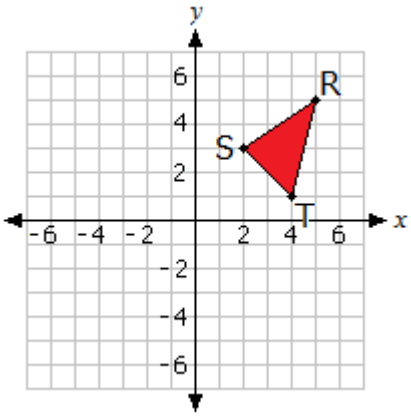
C. (2,0)

D. (7,-7)



Question 7 .MGSE8.G.3

What are the new coordinates of the figure above if it is reflected over the *y*-axis?



A. *S*'(-2,-3), *R*'(-5,-5), *T*'(-4,-1)

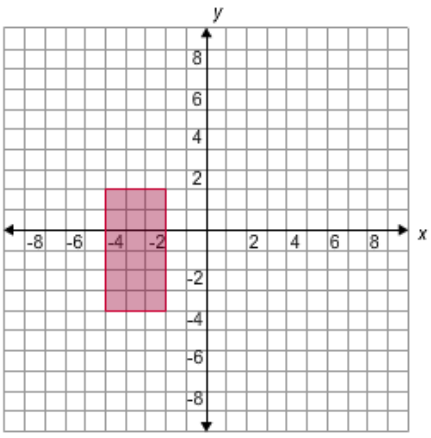
B. *S*'(2,-3), *R*'(5,-5), *T*'(4,-1)

C. *S*'(-2,3), *R*'(-5,5), *T*'(-4,1)

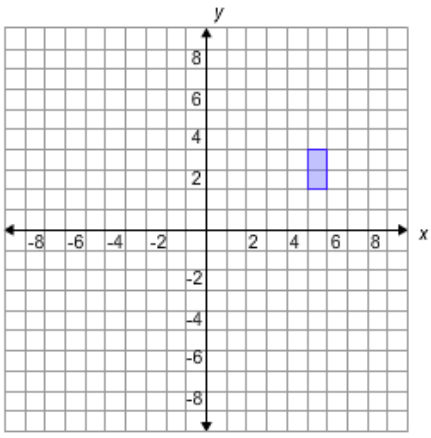
D. *S*'(2,3), *R*'(5,5), *T*'(4,1)

Question 8 . MGSE8.G.4

Which of the following best describes the graphs to the right?



Rectangle A



Rectangle B

A. Rectangle A is neither similar nor congruent to Rectangle B.

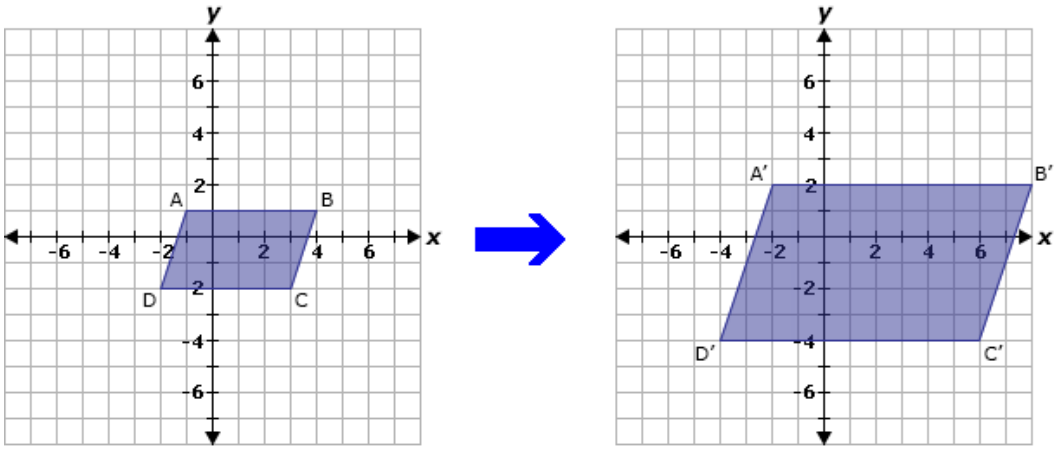
B. Rectangle A is similar to Rectangle B by dilating Rectangle A at point (-2,3) by a scale factor of 3, translating it 4 units up and 3 units to the left and reflecting it across the *y*-axis.

C. Rectangle A is similar to Rectangle B by dilating Rectangle A at point (-2,2) by a scale factor of $\frac{1}{3}$, translating it 2 units up and 3 units to the left and reflecting it across the *y*-axis.

D. Rectangle A is congruent to Rectangle B by dilating Rectangle A at point (-3,3) by a scale factor of $\frac{1}{3}$, translating it 4 units up and 2 units to the left and reflecting it across the *x*-axis.

Question 9. MGSE8.G.4

In the diagram below, parallelogram A'B'C'D' is a dilation of parallelogram ABCD.



Which of the following is true?

A. Parallelogram A'B'C'D' is a reduction of parallelogram ABCD.

B. Parallelogram ABCD and parallelogram A'B'C'D' are similar.

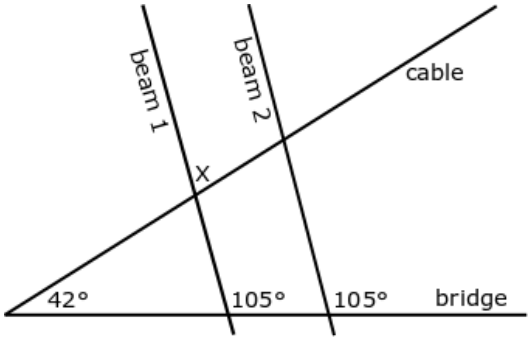
C. Parallelogram ABCD and parallelogram A'B'C'D' are congruent

D. Parallelogram ABCD is a translation of parallelogram A'B'C'D'.

Question 10 . MGSE8.G.5

Cables and parallel beams are used to support a bridge. The obtuse angles formed by the beams and the bridge are 105°. The acute angle formed by the cable and the bridge is 42°.

Note: Picture is not drawn to scale.



What is the measure of angle X?

A. 105°

B. 63°

C. 42°

D. 75°

Question 11 . MGSE8.G.5

Line AC and RT are parallel. If m ∠B is 88°, then what is m ∠S?

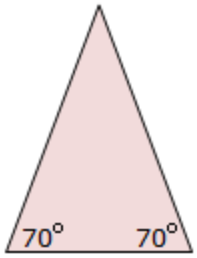
A. 105°

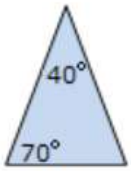
B. 88°

C. 42°

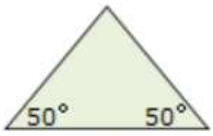
D. 75°

Question 12. MGSE8.G.5

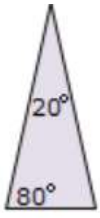




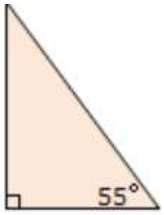
W.



X.



Y.



Z.

Which triangle is similar to the triangle above?

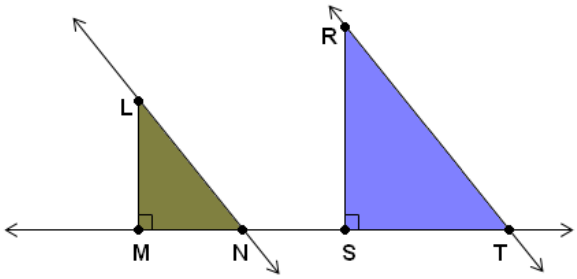
A. X

B. W

C. Z

D. Y

Question 13 . MGSE8.G.5



Given that line LN is parallel to line RT, determine how triangles LMN and RST can be shown to be similar.

A. Since ∠LMN ≅ ∠RST and ∠LNM ≅ ∠RTS, the triangles are similar by angle-angle.

B. Since ∠LMN ≅ ∠RST and MN = RS, the triangles are similar by angle-side.

C. Since ∠LMN ≅ ∠RST and ∠LNM ≅ ∠SRT, the triangles are similar by angle-angle.

D. Since ∠LMN ≅ ∠RST and LM = ST, the triangles are similar by angle-side.

Question 14 . MGSE8.EE1
Write the following expression using a single exponent.

$$(5^4)^3 \times 5^7$$

A. 5^{14}

B. 5^{49}

C. 5^{19}

D. 5^5

Question 15 . MGSE8.EE1
Find an expression equivalent to the one shown below.

$$(5^4)^6 \div 5^6$$

A. 5^{30}

B. 5^4

C. 5^{18}

D. 20

Question 16 . MGSE8.EE.2
Which of the following is equal to 5?

A. $\sqrt{49}$

B. $\sqrt{36}$

C. $\sqrt{25}$

D. $\sqrt{16}$

Question 17 . MGSE8.EE.2
Which of the following is equal to 12?

A. $\sqrt{121}$

B. $\sqrt{196}$

C. $\sqrt{144}$

D. $\sqrt{169}$

Question 18 . MGSE8.EE.2
$x^2 = 81$

A. 7

B. 8

C. 9

D. 10

Question 19 . MGSE8.EE.2

Which of the following is equivalent representation of 4^{-3} ?

A. $\frac{1}{4}$

B. 64

C. $\frac{1}{64}$

D. 12

Question 20 . MGSE8.EE.2

Which of the following is equal to 3?

A. $\sqrt[3]{125}$

B. $\sqrt[3]{27}$

C. $\sqrt[3]{64}$

D. $\sqrt[3]{8}$

Question 21 . MGSE8.EE.2

Determine which the following is the solution to the equation below.

$x^3 = -221$

A. $\sqrt[3]{221}$

B. $\sqrt[3]{-221}$

C. -221

D. 221

Question 22. MGSE8.EE.3

The speed of light is 299,792.458 $\frac{\text{km}}{\text{s}}$.

Which of the following would be a reasonable estimate for the speed of light?

A. $3 \times 10^{-5} \frac{\text{km}}{\text{s}}$

B. $3 \times 10^{6} \frac{\text{km}}{\text{s}}$

C. $3 \times 10^{5} \frac{\text{km}}{\text{s}}$

D. $3 \times 10^{-6} \frac{\text{km}}{\text{s}}$

Question 23 . MGSE8.EE.3

The density of hydrogen is 0.0000899 $\frac{\text{g}}{\text{cm}^3}$.
Which of the following would be a reasonable estimate of the density of hydrogen?

A. $8 \times 10^{-4} \frac{\text{g}}{\text{cm}^3}$

B. $8 \times 10^{-5} \frac{\text{g}}{\text{cm}^3}$

C. $9 \times 10^{-5} \frac{\text{g}}{\text{cm}^3}$

D. $9 \times 10^{-4} \frac{\text{g}}{\text{cm}^3}$

Question 24 . MGSE8.EE.4
Which shows the expression below simplified?

$$(7 \times 10^{-6}) \times 0.006$$

A. 1.3×10^{18}

B. 4.2×10^{-9}

C. 4.2×10^{-8}

D. 4.2×10^{18}

Question 25 . MGSE8.EE.4
Which shows the expression below simplified?

$$0.0064 \div (8 \times 10^{-2})$$

A. 8×10^{-3}

B. -1.6×10^{-2}

C. 8×10^{0}

D. 8×10^{-2}

Question 26 . MGSE8.EE.4
Which shows the expression below simplified?

$$0.0032 + (1.6 \times 10^{-5})$$

A. 1.6032×10^{-8}

B. 3.216×10^{-3}

C. 1.6032×10^{-5}

D. 3.216×10^{-5}

Question 27 . MGSE8.NS.1
Which of the following is an irrational number?

A. 3.8

B. $\frac{8}{13}$

C. $\sqrt{51}$

D. $\sqrt{49}$

Question 28 . MGSE8.NS.1
Which of the following is a rational number?

A. $\sqrt{21}$

B. $\sqrt{144}$

C. $\sqrt{51}$

D. π

Question 29 . MGSE8.NS.1
What is the decimal expansion of the following fraction?

$$\frac{1}{22}$$

A. $0.0\overline{45}$

B. $0.04\overline{5}$

C. 0.22

D. 1.22

Question 30 . MGSE8.NS.2

At what position on the number line is the dot located?

A. $\sqrt{20}$

B. $\sqrt{40}$

C. $\sqrt{30}$

D. $\sqrt{60}$

Question 31 . MGSE8.NS.2

Which symbol makes the statement true?

$\sqrt{12}$ $\prec$, $\succ$, $=$ 4.2

A. $\prec$

B. $\succ$

C. $=$