

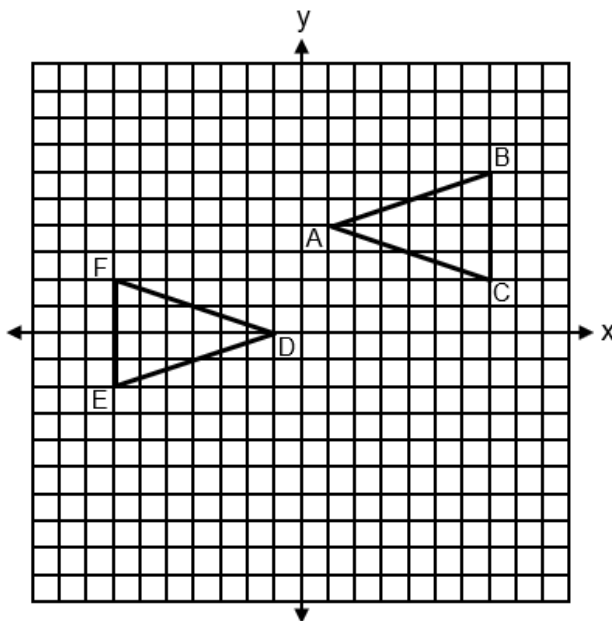
Appendix A: Sample Questions for the Regents Examination in Geometry

To aid in the implementation of the Next Generation Mathematics Learning Standards, a limited number of sample questions are being provided to help students, parents, and educators better understand the shifts of the NGMLS. The eight questions below illustrate these shifts for Geometry.

While educators from around the state have helped craft these sample questions, they have not undergone the same extensive review, vetting, and field testing that occurs with actual questions used on the State exams. The sample questions were designed to help educators think about content, NOT to show how operational exams look exactly or to provide information about how teachers should administer the test.

1. G-CO.A

Triangles ABC and DEF are graphed on the set of axes below.

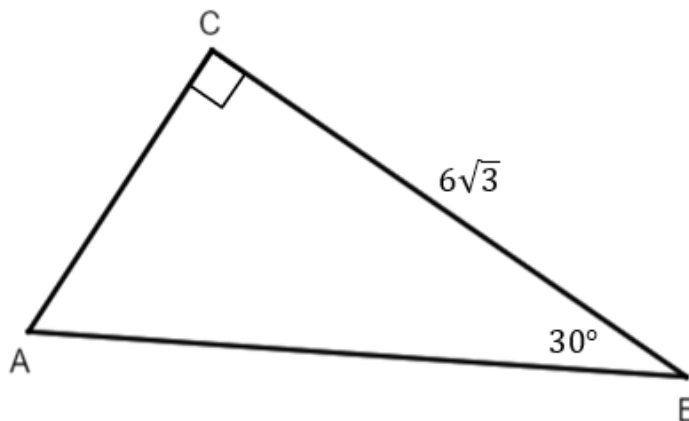


Which sequence of rigid motions maps $\triangle ABC$ onto $\triangle DEF$?

- (1) A reflection over $y = -x + 2$.
- (2) A point reflection through $(0, 2)$.
- (3) A translation 2 units left followed by a reflection over the x -axis.
- (4) A translation 4 units down followed by a reflection over the y -axis.

2. G-SRT.C

In right triangle ABC below, $m\angle C = 90^\circ$, $m\angle B = 30^\circ$, and $CB = 6\sqrt{3}$.

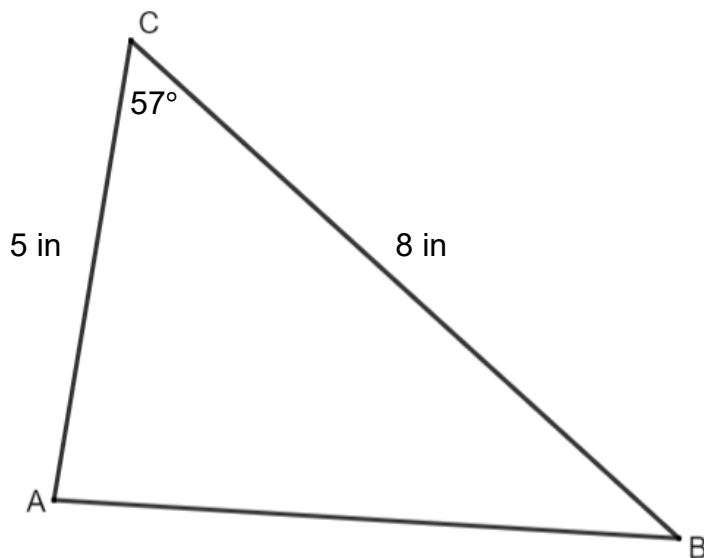


The length of \overline{AB} is

- (1) $3\sqrt{3}$
- (2) 9
- (3) 12
- (4) $12\sqrt{3}$

3. G-SRT.D

In non-right triangle ABC shown below, $AC = 5$ in, $BC = 8$ in, and $m\angle C = 57^\circ$.

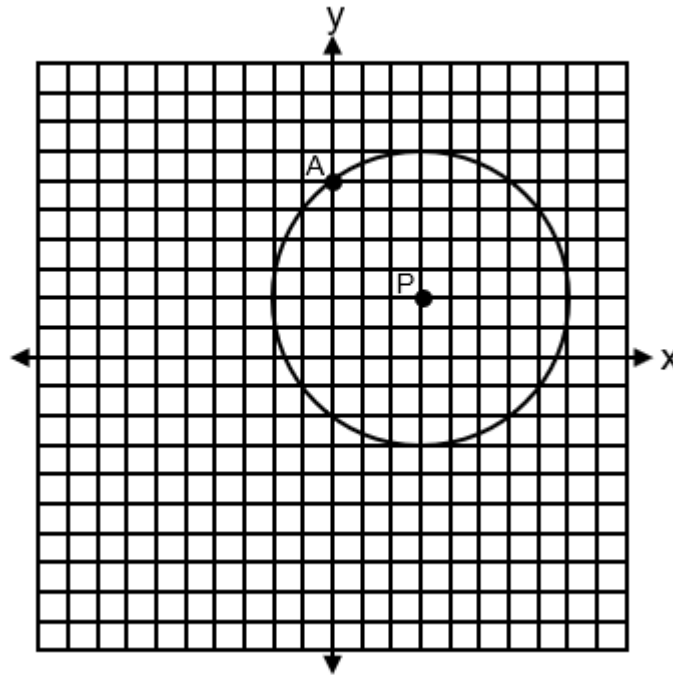


What is the area of $\triangle ABC$, to the nearest tenth of a square inch?

- (1) 10.9
- (2) 16.8
- (3) 21.8
- (4) 33.5

4. G-GPE.A

Circle P with center at $(3,2)$ and passing through $A(0,6)$ is graphed on the set of axes below.

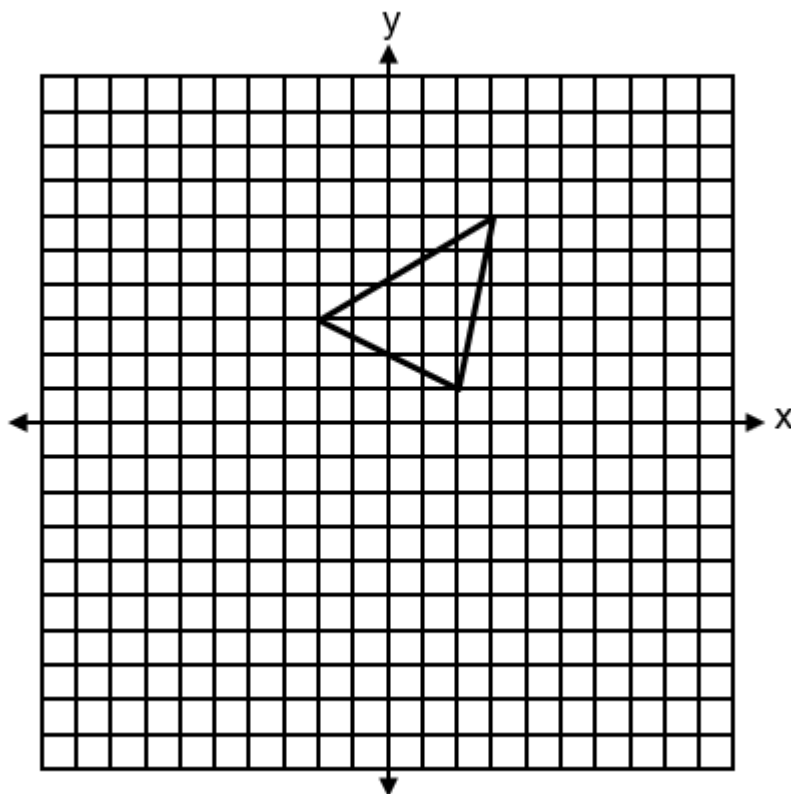


An equation of circle P is

- (1) $(x + 3)^2 + (y + 2)^2 = 5$
- (2) $(x + 3)^2 + (y + 2)^2 = 25$
- (3) $(x - 3)^2 + (y - 2)^2 = 5$
- (4) $(x - 3)^2 + (y - 2)^2 = 25$

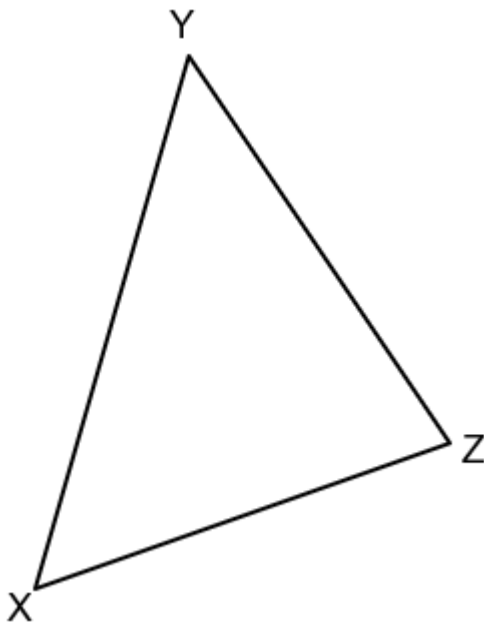
5. G-CO.A

A triangle with vertices at $(-2,3)$, $(3,6)$, and $(2,1)$, is graphed on the set of axes below. A horizontal stretch of scale factor 2 with respect to $x = 0$, is represented by $(x, y) \rightarrow (2x, y)$. Graph the image of this triangle, after the horizontal stretch on the same set of axes.



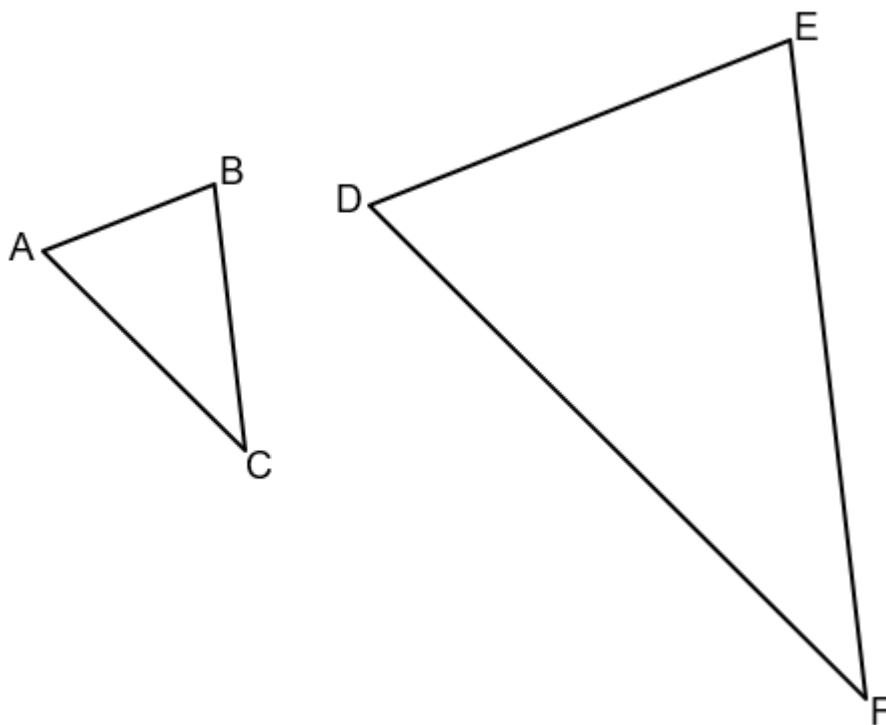
6. G-CO.D

Triangle XYZ is shown below. Using a compass and straightedge, construct the circumcenter of $\triangle XYZ$.



7. G-SRT.B

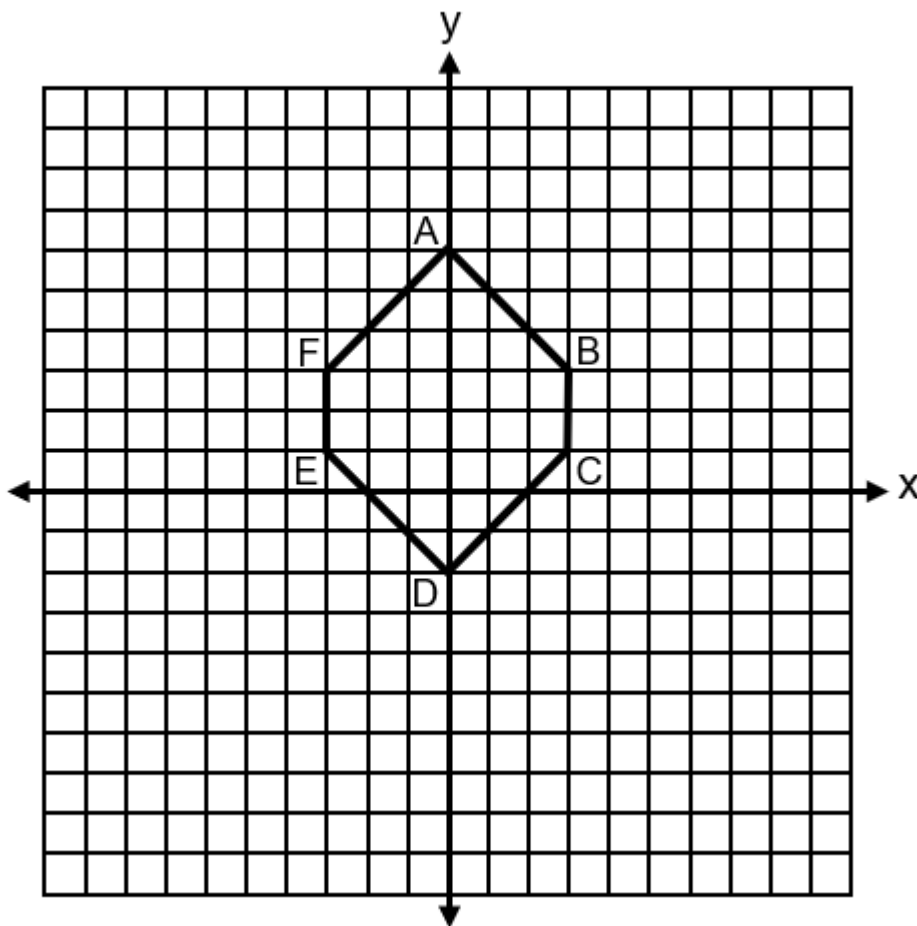
In the diagram below, $\triangle ABC \sim \triangle DEF$.



If $AB = 4$, $BC = x - 1$, $DE = x + 3$, and $EF = 15$, determine and state the length of \overline{DE} .

8. G-GPE.B

Hexagon $ABCDEF$ with coordinates at $A(0,6)$, $B(3,3)$, $C(3,1)$, $D(0,-2)$, $E(-3,1)$, and $F(-3,3)$ is graphed on the set of axes below.



Determine and state the perimeter of $ABCDEF$ in simplest radical form.

Answer Key to Geometry Sample Items

1. Choice 2
2. Choice 3
3. Choice 2
4. Choice 4

5. Rubric

[2] A correct graph of the image is drawn.

[1] Appropriate work is shown, but one computational or graphing error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] $(-4,3)$, $(6,6)$, and $(4,1)$ are stated, but no further correct work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

6. Rubric

[2] A correct construction is drawn showing all appropriate arcs.

[1] Appropriate work is shown, but one construction error is made.

or

[1] A correct construction is drawn showing all appropriate arcs, but the circumcenter is not constructed.

[0] A drawing that is not an appropriate construction is shown.

or

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

7. Rubric

[4] 10, and correct work is shown.

[3] Appropriate work is shown, but one computational or factoring error is made.

or

[3] Correct work is shown to find $x = 7$, but no further correct work is shown.

[2] Appropriate work is shown, but two or more computational errors are made.

or

[2] Appropriate work is shown, but one conceptual error is made.

or

[2] A correct quadratic equation in standard form is written, but no further correct work is shown.

[1] Appropriate work is shown, but one conceptual error and one computational error is made.

or

[1] A correct relevant equation is written, but no further correct work is shown.

or

[1] 10, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.

8. Rubric

[2] $4 + 12\sqrt{2}$, and correct work is shown.

[1] Appropriate work is shown, but one computational error is made.

or

[1] Appropriate work is shown, but one conceptual error is made.

or

[1] Correct work is shown to find the length of \overline{AB} , \overline{CD} , \overline{DE} , or \overline{FA} .

or

[1] $4 + 12\sqrt{2}$, but no work is shown.

[0] A zero response does not contain enough relevant course-level work to receive any credit, does not satisfy the criteria for one or more credits, or is a correct response that was obtained by an obviously incorrect procedure.