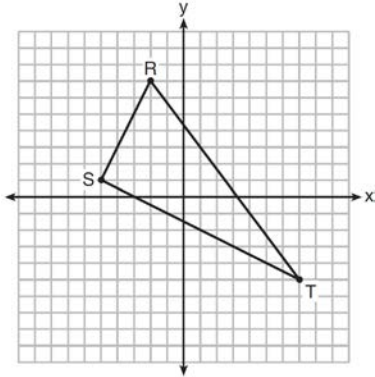


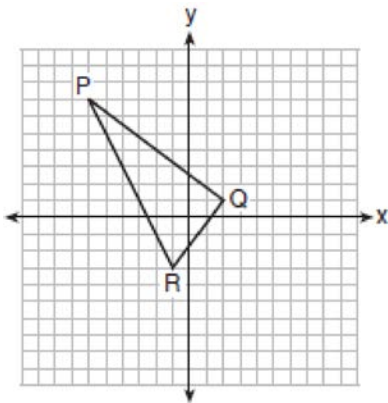
G.GPE.B.7: Polygons in the Coordinate Plane

- 1 Triangle RST is graphed on the set of axes below.



How many square units are in the area of $\triangle RST$?

- 1) $9\sqrt{3} + 15$
 - 2) $9\sqrt{5} + 15$
 - 3) 45
 - 4) 90
- 2 On the set of axes below, the vertices of $\triangle PQR$ have coordinates $P(-6, 7)$, $Q(2, 1)$, and $R(-1, -3)$.



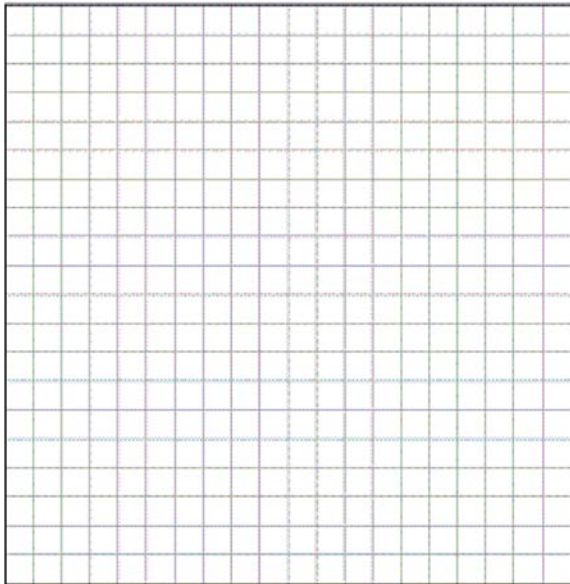
What is the area of $\triangle PQR$?

- 1) 10
- 2) 20
- 3) 25
- 4) 50

- 3 The coordinates of vertices A and B of $\triangle ABC$ are $A(3, 4)$ and $B(3, 12)$. If the area of $\triangle ABC$ is 24 square units, what could be the coordinates of point C ?
 - 1) $(3, 6)$
 - 2) $(8, -3)$
 - 3) $(-3, 8)$
 - 4) $(6, 3)$
- 4 Square $ABCD$ has vertices $A(-2, -3)$, $B(4, -1)$, $C(2, 5)$, and $D(-4, 3)$. What is the length of a side of the square?
 - 1) $2\sqrt{5}$
 - 2) $2\sqrt{10}$
 - 3) $4\sqrt{5}$
 - 4) $10\sqrt{2}$
- 5 The vertices of square $RSTV$ have coordinates $R(-1, 5)$, $S(-3, 1)$, $T(-7, 3)$, and $V(-5, 7)$. What is the perimeter of $RSTV$?
 - 1) $\sqrt{20}$
 - 2) $\sqrt{40}$
 - 3) $4\sqrt{20}$
 - 4) $4\sqrt{40}$
- 6 The endpoints of one side of a regular pentagon are $(-1, 4)$ and $(2, 3)$. What is the perimeter of the pentagon?
 - 1) $\sqrt{10}$
 - 2) $5\sqrt{10}$
 - 3) $5\sqrt{2}$
 - 4) $25\sqrt{2}$

- 7 Triangle ABC has vertices at $A(3,0)$, $B(9,-5)$, and $C(7,-8)$. Find the length of \overline{AC} in simplest radical form.

- 8 Triangle ABC has coordinates $A(-6,2)$, $B(-3,6)$, and $C(5,0)$. Find the perimeter of the triangle. Express your answer in simplest radical form. [The use of the grid below is optional.]



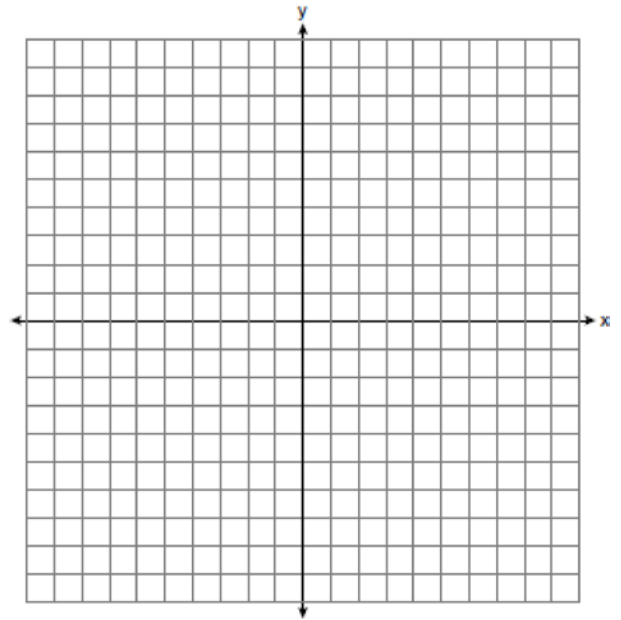
- 9 On the accompanying set of axes, graph and label the following lines:

$$y = 5$$

$$x = -4$$

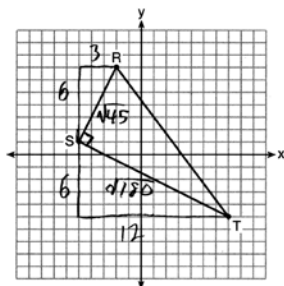
$$y = \frac{5}{4}x + 5$$

Calculate the area, in square units, of the triangle formed by the three points of intersection.



**G.GPE.B.7: Polygons in the Coordinate Plane
Answer Section**

1 ANS: 3



$$\sqrt{45} = 3\sqrt{5} \quad a = \frac{1}{2}(3\sqrt{5})(6\sqrt{5}) = \frac{1}{2}(18)(5) = 45$$

$$\sqrt{180} = 6\sqrt{5}$$

REF: 061622geo

2 ANS: 3

REF: 061702geo

3 ANS: 3

$$A = \frac{1}{2}ab \quad 3 - 6 = -3 = x$$

$$24 = \frac{1}{2}a(8) \quad \frac{4+12}{2} = 8 = y$$

$$a = 6$$

REF: 081615geo

4 ANS: 2

$$\sqrt{(-2-4)^2 + (-3-(-1))^2} = \sqrt{40} = \sqrt{4}\sqrt{10} = 2\sqrt{10}$$

REF: 011313ge

5 ANS: 3

$$4\sqrt{(-1-(-3))^2 + (5-1)^2} = 4\sqrt{20}$$

REF: 081703geo

6 ANS: 2

$$\sqrt{(-1-2)^2 + (4-3)^2} = \sqrt{10}$$

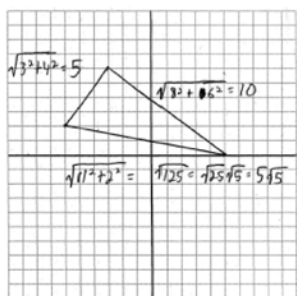
REF: 011615geo

7 ANS:

$$\sqrt{(7-3)^2 + (-8-0)^2} = \sqrt{16+64} = \sqrt{80} = 4\sqrt{5}$$

REF: 061331ge

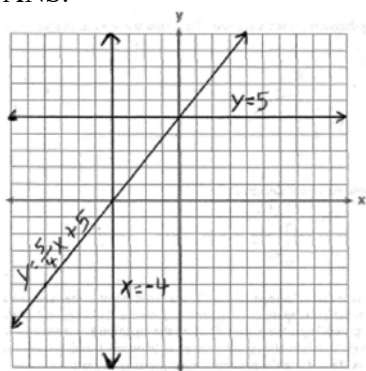
8 ANS:



$15 + 5\sqrt{5}$.

REF: 060936ge

9 ANS:



10. $A = \frac{1}{2}bh = \frac{1}{2} \times 4 \times 5 = 10$

REF: 010335a