



# AREA OF TRIANGLES

Name \_\_\_\_\_

Score \_\_\_\_\_

AT:48

Example : Find the area of triangle ABC whose vertices are  $U(2, -3)$ ,  $V(6, -3)$  and  $W(4, -7)$ .

$$\begin{aligned} \text{Area} &= \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)] \\ &= \frac{1}{2} [2(-3 + 7) + 6(-7 + 3) + 4(-3 + 3)] \\ &= \frac{1}{2} [2(4) + 6(-4) + 4(0)] \\ &= \frac{1}{2} [8 - 24] = -\frac{16}{2} = \mathbf{8 \text{ square units}} \text{(area will not be negative value)} \end{aligned}$$

Use the vertices of each triangle to compute the area.


1)

F(5, 4), G(7, 8) and H(8, 4)

Area =  square units

2)

A(10, 7), B(5, 2) and C(7, 7)

Area =  square units

3)

S(-8, -3), T(-5, 4) and U(-2, -3)

Area =  square units

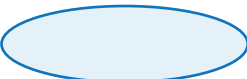
4)

L(2, -3), M(2, -10) and N(10, -10)

Area =  square units


5)

X(2, 9), Y(3, 7) and Z(4, 9)

Area =  square units

6)

P(-9, -5), Q(-7, -8) and R(1, -8)

Area =  square units



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## Answer key

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$$\begin{aligned} \text{Area} &= \frac{1}{2} [x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)] \\ &= \frac{1}{2} [2(-3 + 7) + 6(-7 + 3) + 4(-3 + 3)] \\ &= \frac{1}{2} [2(4) + 6(-4) + 4(0)] \\ &= \frac{1}{2} [8 - 24] = -\frac{16}{2} = \mathbf{8 \text{ square units}} \text{(area will not be negative value)} \end{aligned}$$

Use the vertices of each triangle to compute the area.

1)

F(5, 4), G(7, 8) and H(8, 4)

Area = **6** square units

2)

A(10, 7), B(5, 2) and C(7, 7)

Area = **7.5** square units

3)

S(-8, -3), T(-5, 4) and U(-2, -3)

Area = **21** square units

4)

L(2, -3), M(2, -10) and N(10, -10)

Area = **28** square units

5)

X(2, 9), Y(3, 7) and Z(4, 9)

Area = **2** square units

6)

P(-9, -5), Q(-7, -8) and R(1, -8)

Area = **12** square units