Geometry Chapter 9 Test Review

Decide whether the following can be sides of a triangle. If they can, classify the triangle as acute, right, or obtuse.

1. 6, 7, 10 **Check** Obtuse

2. 9, 40, 41

3. $3, 4\sqrt{5}, 9$

$$10^2 \qquad 6^2 + 7^2$$

$$100 \; > \; 85$$

c^2 is greater than, so “Obtuse”

Decide whether the following can be sides of a triangle. If they can, classify the triangle as acute, right, or obtuse.

1. 6, 7, 10 — Obtuse

2. 9, 40, 41 — Check — Right

3. $3, 4\sqrt{5}, 9$

$$41^2 \quad 9^2 + 40^2$$

$$1681 = 1681$$

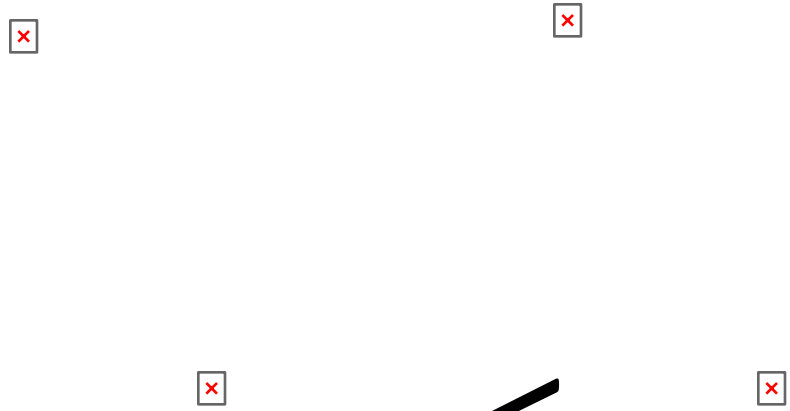
c^2 is equal to, so “Right”

Decide whether the following can be sides of a triangle. If they can, classify the triangle as acute, right, or obtuse.

1. 6, 7, 10 — Obtuse

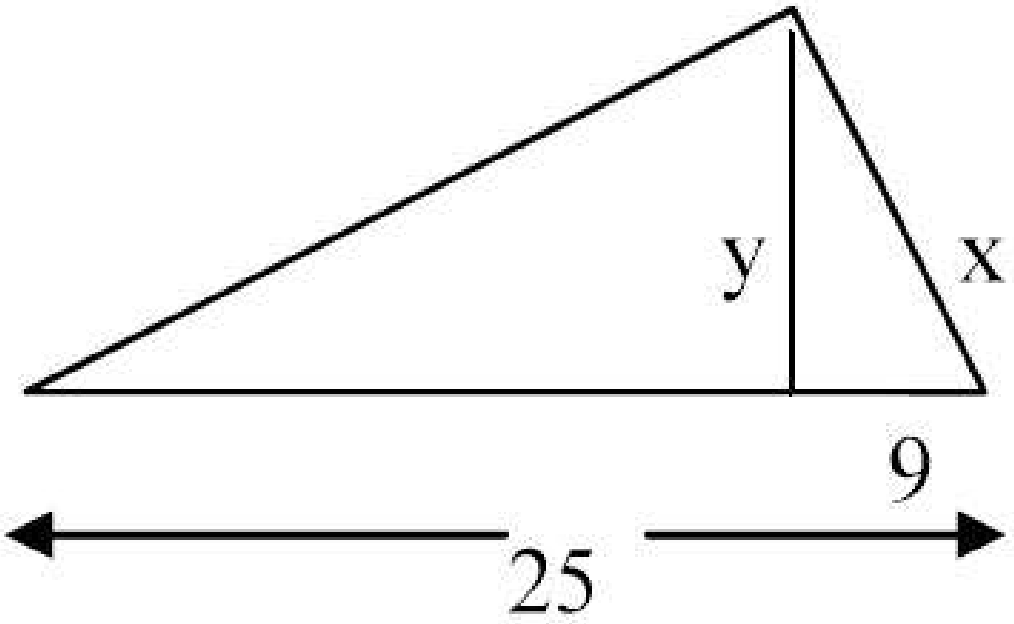
2. 9, 40, 41 — Right

3. $3, 4\sqrt{5}, 9$ — Check — Acute



c^2 is less than, so “Acute”

4. Find x and y.

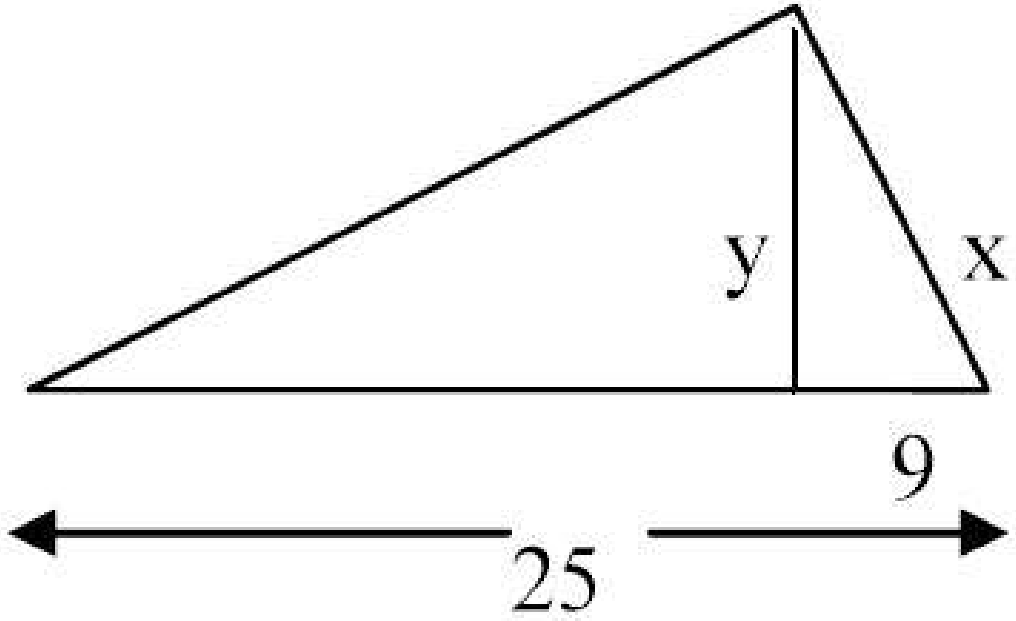


$x =$ Check $y =$

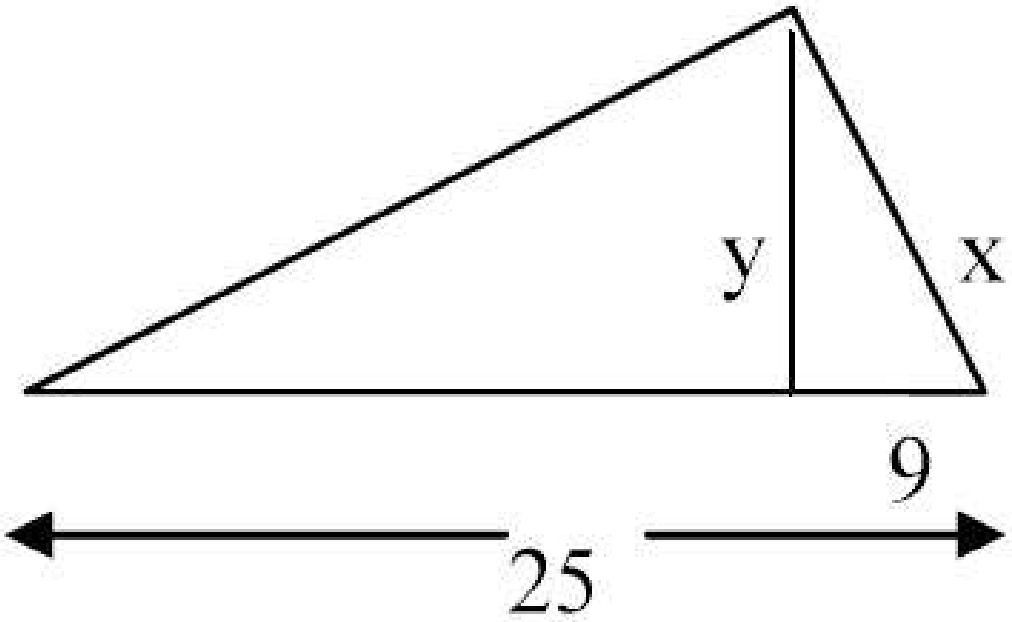
15

$$\frac{9}{x} = \frac{x}{25} \qquad x^2 = 225$$

$$x = 15$$



4. Find x and y.



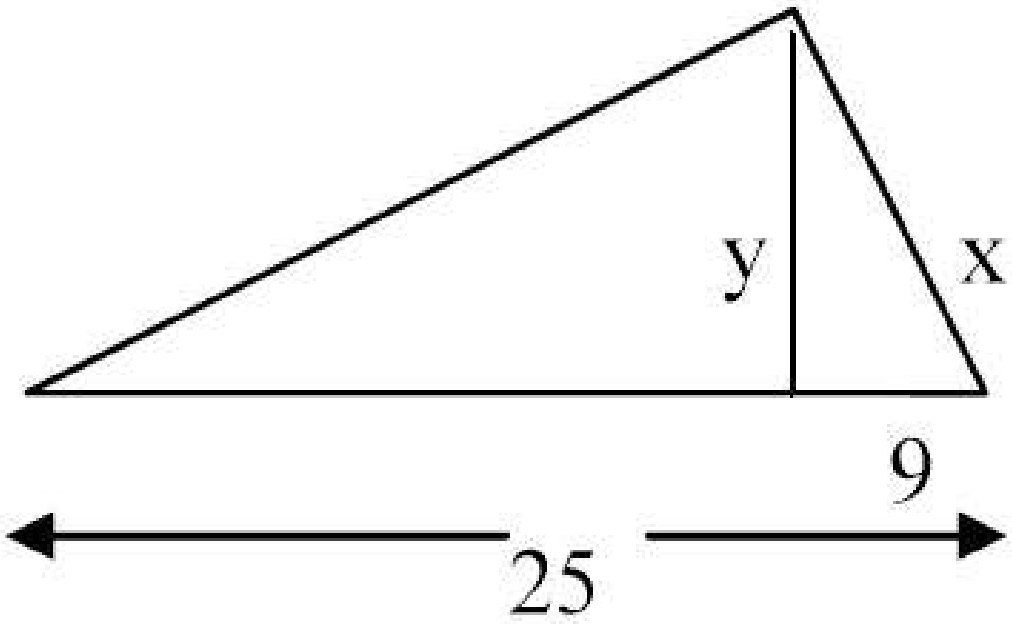
$x =$

$y =$

Check

15

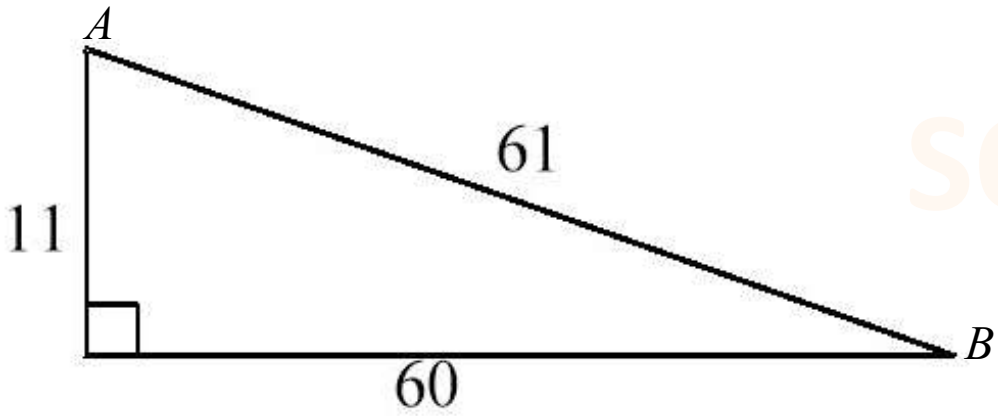
12


y
x
9
25

$\sin A =$ $\frac{60}{61}$ $\cos A =$ $\square$ $\tan A =$ $\frac{60}{11}$

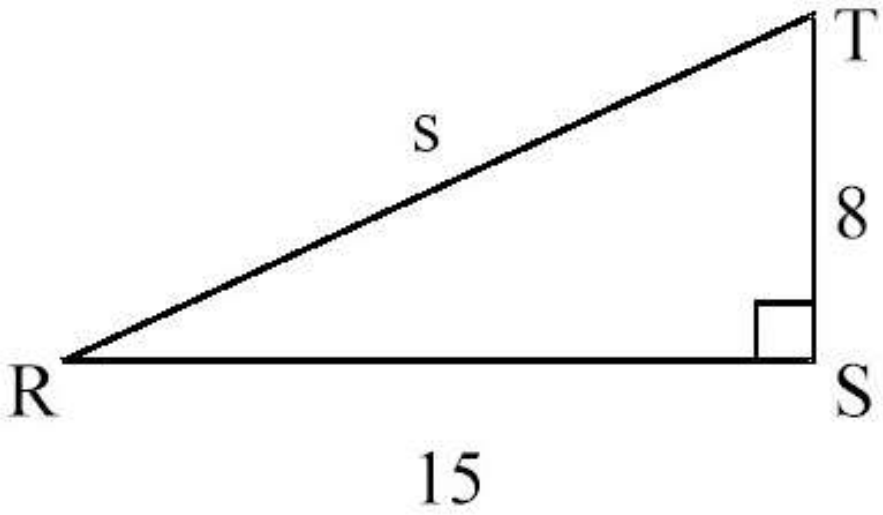
5. Find the sine, cosine, and tangent of the acute angles.

Check



$\sin B =$ $\frac{11}{61}$ $\cos B =$ $\frac{60}{61}$ $\tan B =$ $\frac{11}{60}$

6. Solve the right triangle. (find the missing sides and angles)



$s =$

17

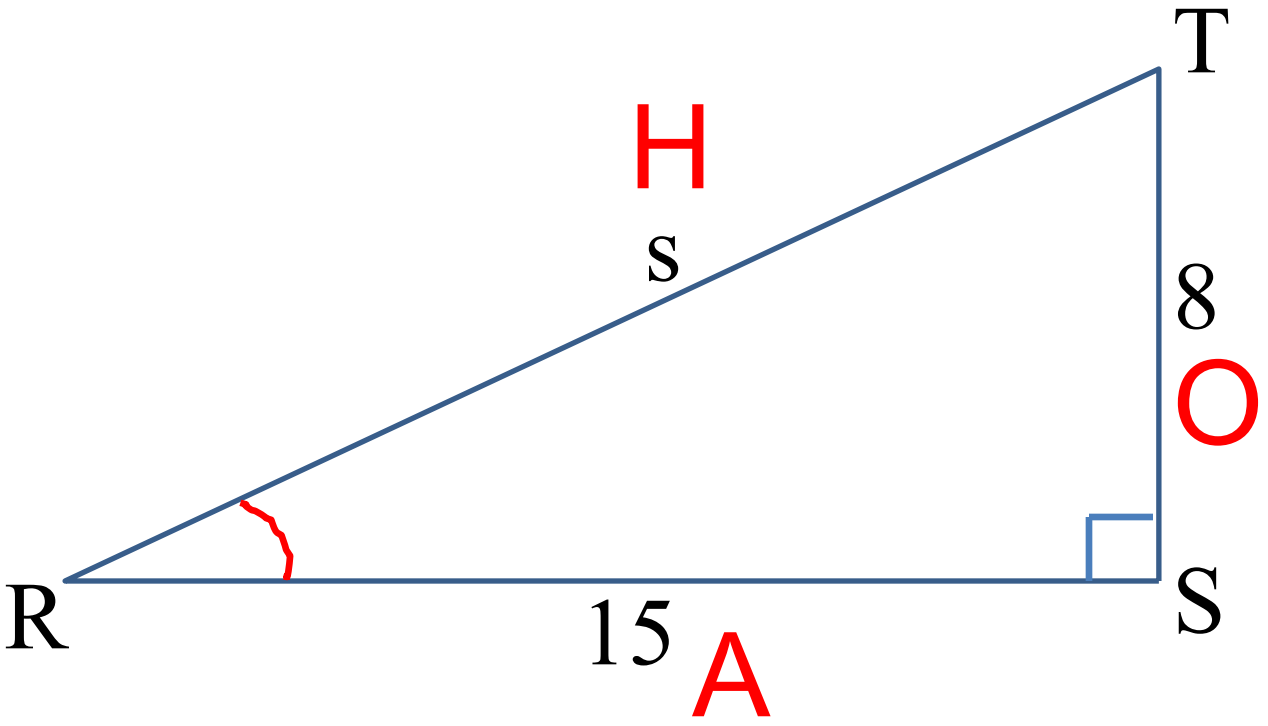
$\angle R =$

28.1°

$\angle T =$

61.9°

Check



$$s = \sqrt{8^2 + 15^2}$$

$$s = \sqrt{289}$$

$$s = 17$$

$$\tan R = \frac{8}{15}$$

$$\tan^{-1}\left(\frac{8}{15}\right) = 28.1°$$

$$90 - 28.1 = 61.9°$$

Let $\vec{u} = \langle 0, -5 \rangle$, $\vec{v} = \langle -2, -3 \rangle$, and $\vec{w} = \langle 4, 6 \rangle$

7. Find $\vec{u} + \vec{v}$

<-2,-8>

Check

8. Find $\vec{u} + \vec{w}$

9. Find $\vec{v} + \vec{w}$

Let $\vec{u} = \langle 0, -5 \rangle$, $\vec{v} = \langle -2, -3 \rangle$, and $\vec{w} = \langle 4, 6 \rangle$

7. Find $\vec{u} + \vec{v}$ $\langle 0 + (-2), -5 + (-3) \rangle$

$\langle -2, -8 \rangle$

8. Find $\vec{u} + \vec{w}$

9. Find $\vec{v} + \vec{w}$

Let $\vec{u} = \langle 0, -5 \rangle$, $\vec{v} = \langle -2, -3 \rangle$, and $\vec{w} = \langle 4, 6 \rangle$

7. Find $\vec{u} + \vec{v}$ <-2,-8>

8. Find $\vec{u} + \vec{w}$ <4,1> Check

9. Find $\vec{v} + \vec{w}$

Let $\vec{u} = \langle 0, -5 \rangle$, $\vec{v} = \langle -2, -3 \rangle$, and $\vec{w} = \langle 4, 6 \rangle$

7. Find $\vec{u} + \vec{v}$

8. Find $\vec{u} + \vec{w}$

9. Find $\vec{v} + \vec{w}$

Let $\vec{u} = \langle 0, -5 \rangle$, $\vec{v} = \langle -2, -3 \rangle$, and $\vec{w} = \langle 4, 6 \rangle$

7. Find $\vec{u} + \vec{v}$

<-2,-8>

8. Find $\vec{u} + \vec{w}$

<4,1>

9. Find $\vec{v} + \vec{w}$

<2,3>

Check

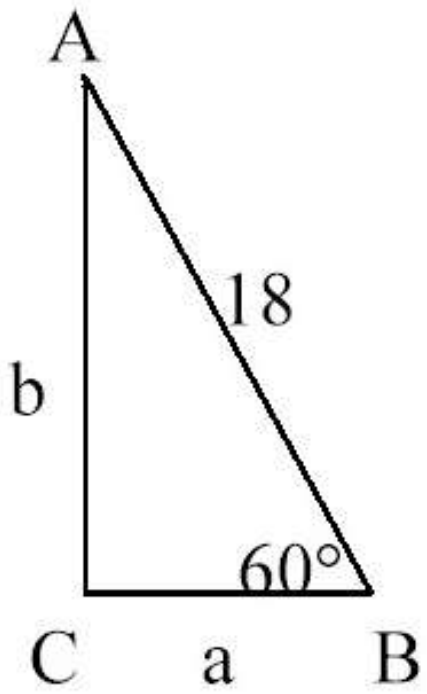
Let $\vec{u} = \langle 0, -5 \rangle$, $\vec{v} = \langle -2, -3 \rangle$, and $\vec{w} = \langle 4, 6 \rangle$

7. Find $\vec{u} + \vec{v}$

8. Find $\vec{u} + \vec{w}$

9. Find $\vec{v} + \vec{w}$

10. Solve the right triangle.



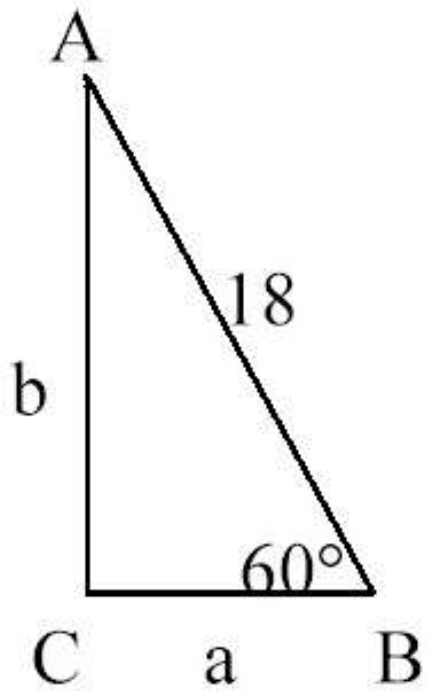
$a =$ 9

$b =$ $9\sqrt{3}$

$\angle A =$ 30°

Check

$30° - 60° - 90°$



$a = 9$

$b = 9\sqrt{3}$

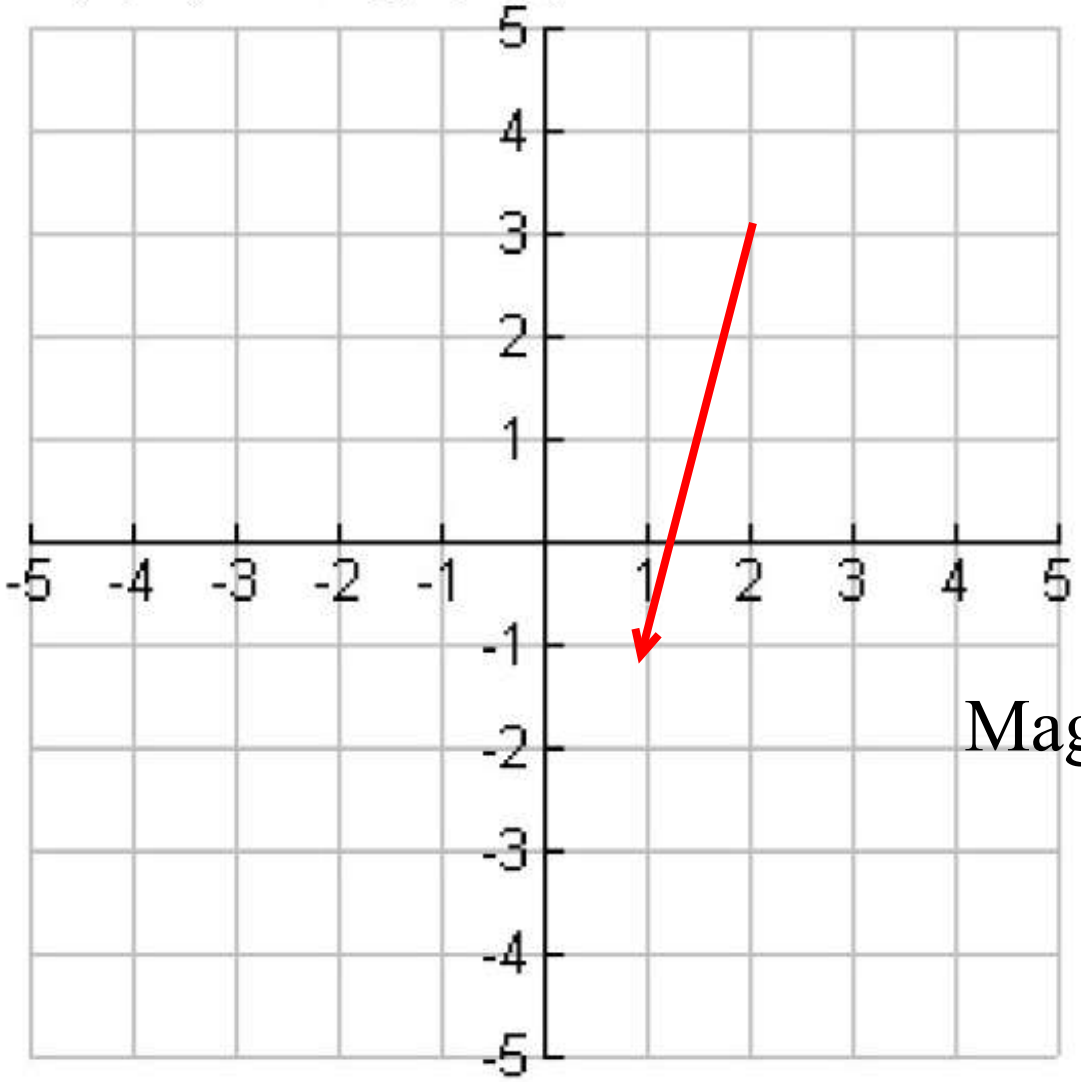
$\angle A = 30°$

Hypotenuse $\div$ 2 = short leg

short leg $\sqrt{3}$ = long leg

Write the component form of the vector and find its magnitude.

11. P(2, 3) and Q(1, -1)



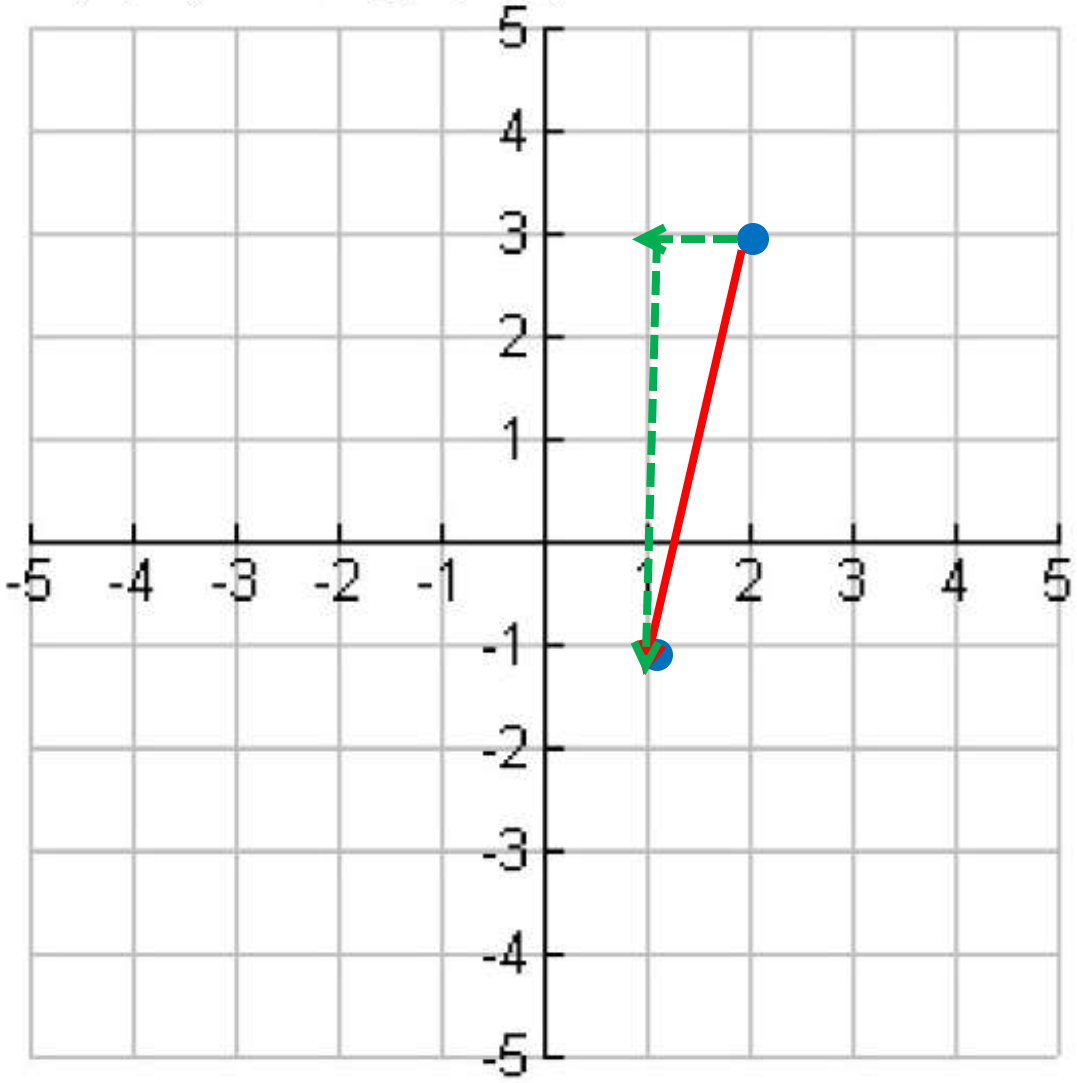
Component form = $\langle -1, -4 \rangle$

Check

Magnitude = $\sqrt{17} \approx 4.1$

Write the component form of the vector and find its magnitude.

11. P(2, 3) and Q(1, -1)



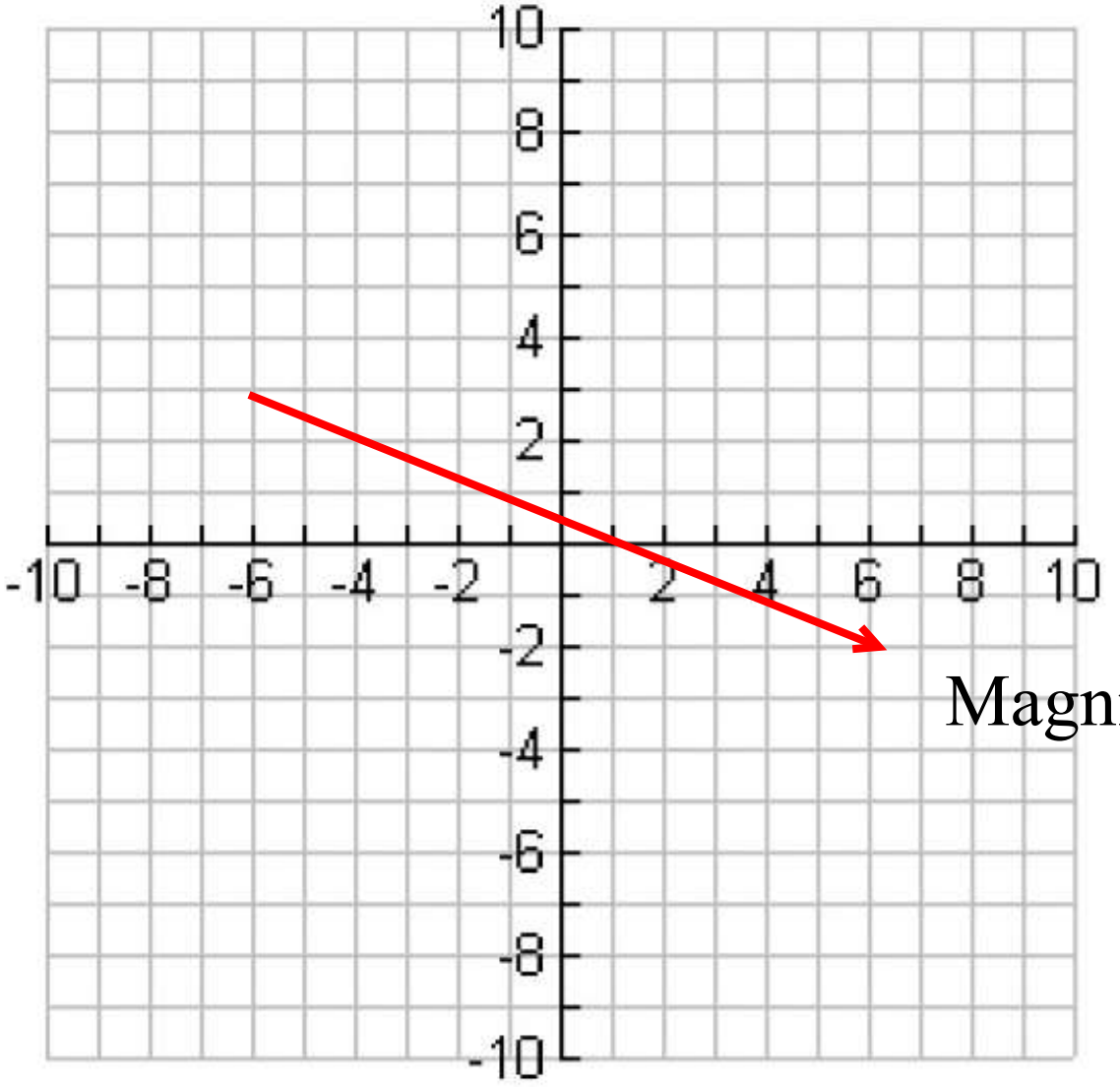
$\langle -1$

$1^2 + 4^2 = 17$

$\sqrt{17}$

Write the component form of the vector and find its magnitude.

12. P(-6, 3) and Q(6, -2)



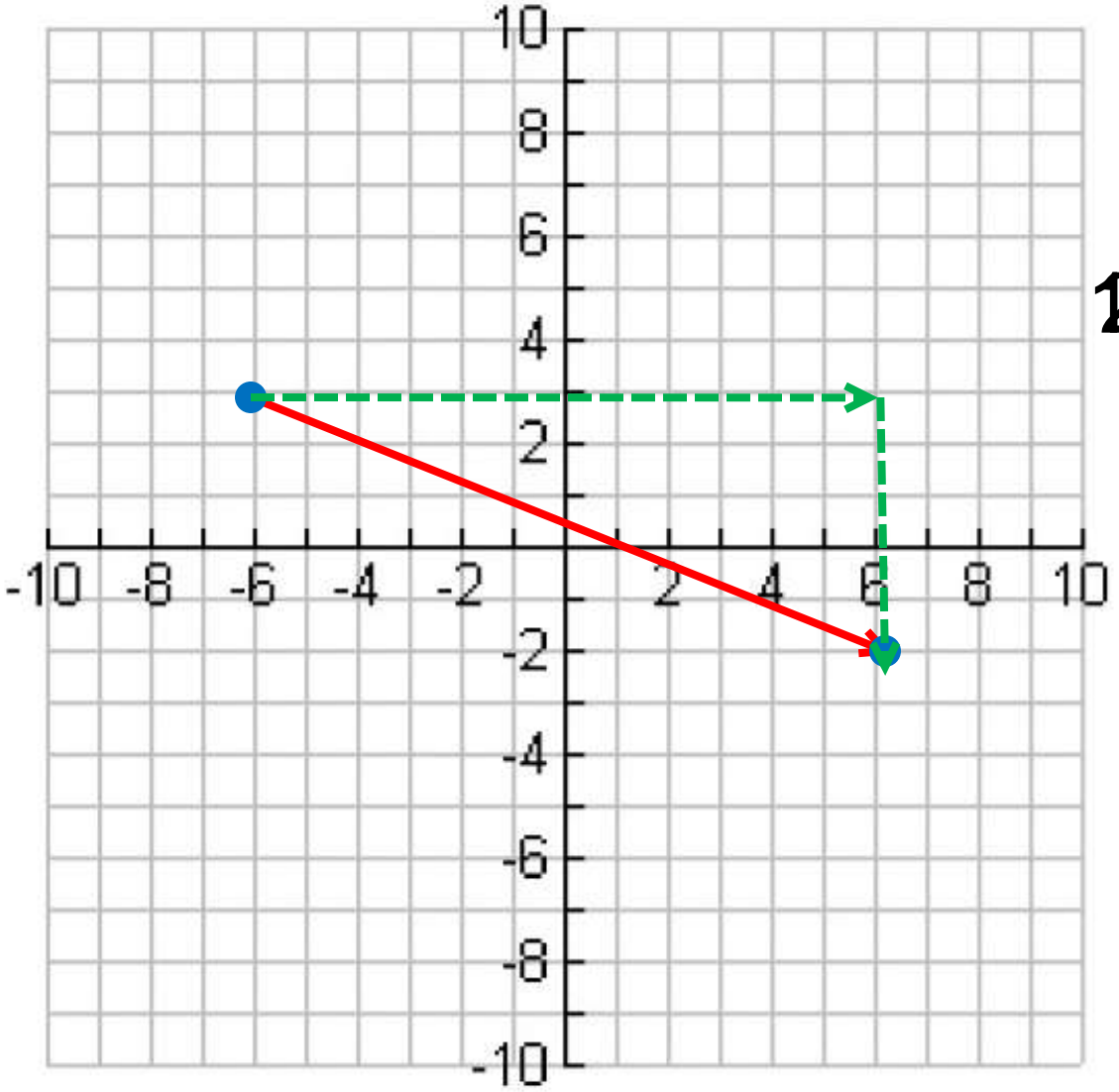
Component form = $\langle 12, -5 \rangle$

Check

Magnitude = 13

Write the component form of the vector and find its magnitude.

12. P(-6, 3) and Q(6, -2)



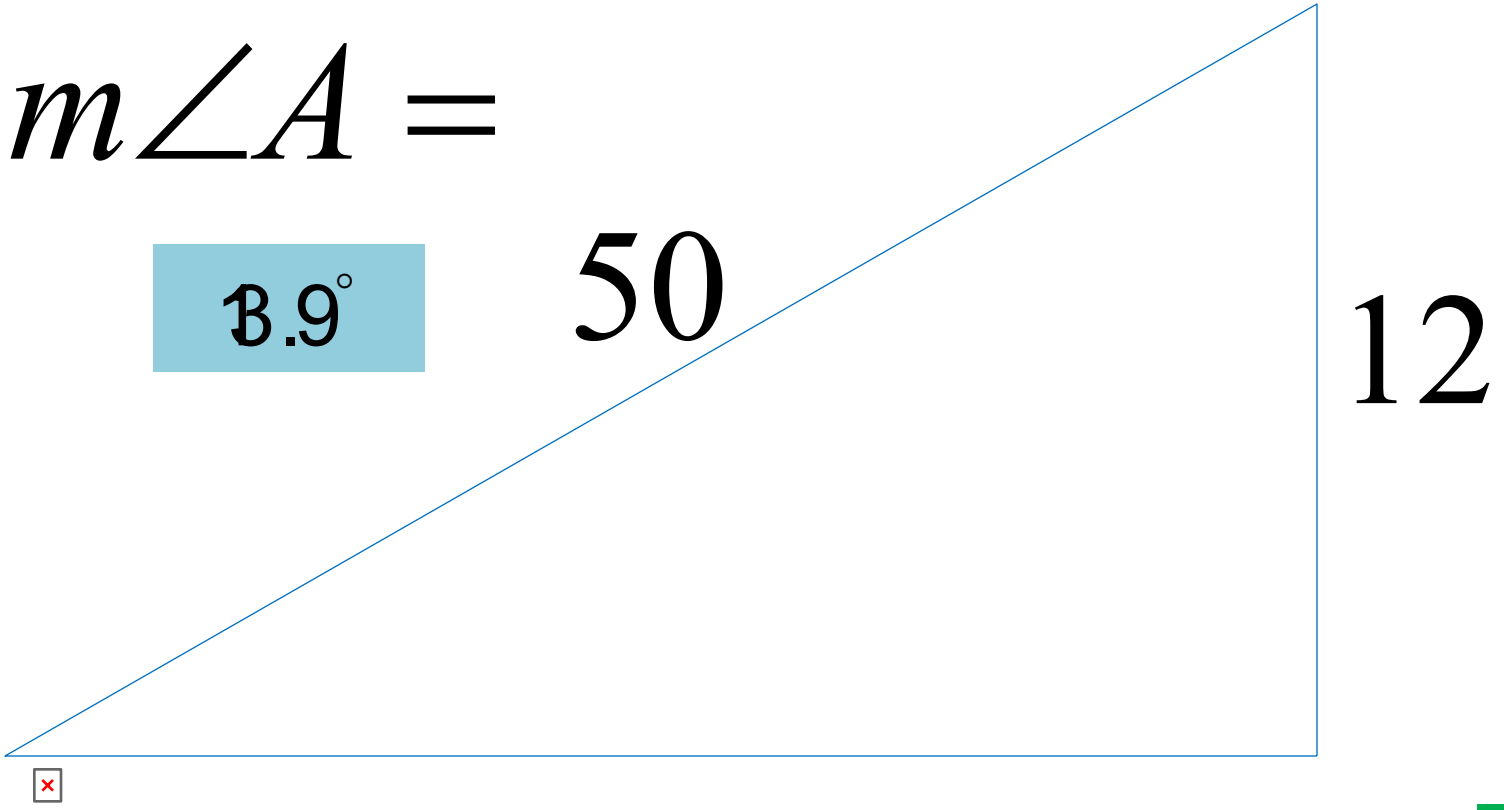
$12^2 + 5^2 = 169$

$\sqrt{169} = 13$

13. An escalator is 50ft long and rises 12ft between two floors in a store. Find the angle of elevation of the escalator.

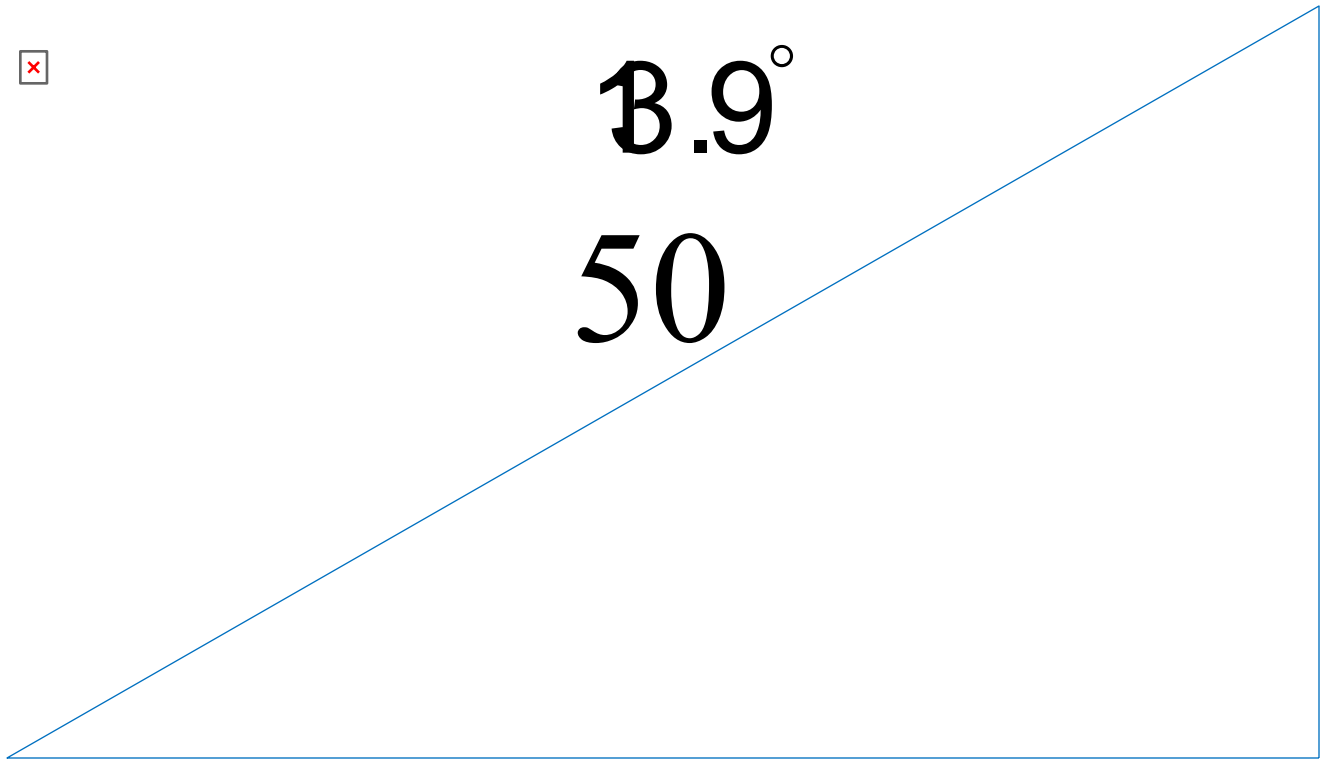
$m\angle A =$

13.9°



Check

13. An escalator is 50ft long and rises 12ft between two floors in a store. Find the angle of elevation of the escalator.



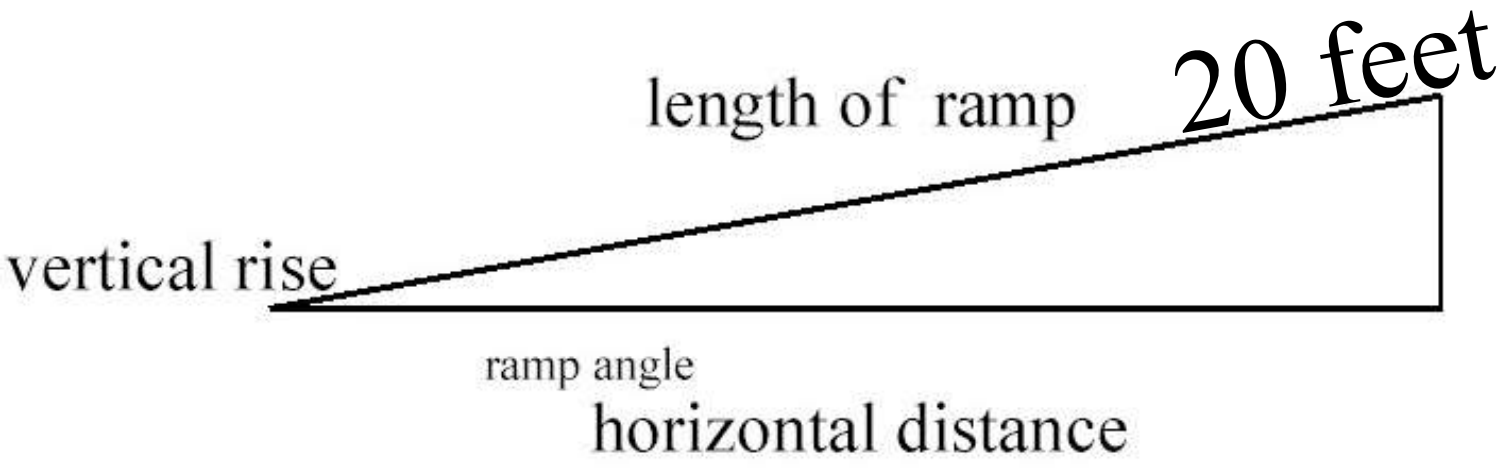
$$\sin A = \frac{12}{50} \qquad \sin^{-1}\left(\frac{12}{50}\right)$$

14. The Uniform Federal Accessibility Standards specify that the ramp angle used for wheelchair ramps be less than or equal to 4.76°. The length of one ramp is 20 feet. The vertical rise is 17 inches. Estimate the ramps horizontal distance and its ramp angle. Does it fall within the guidelines? (Hint: think about the measure.)

Yes

Check

Yes or No ???

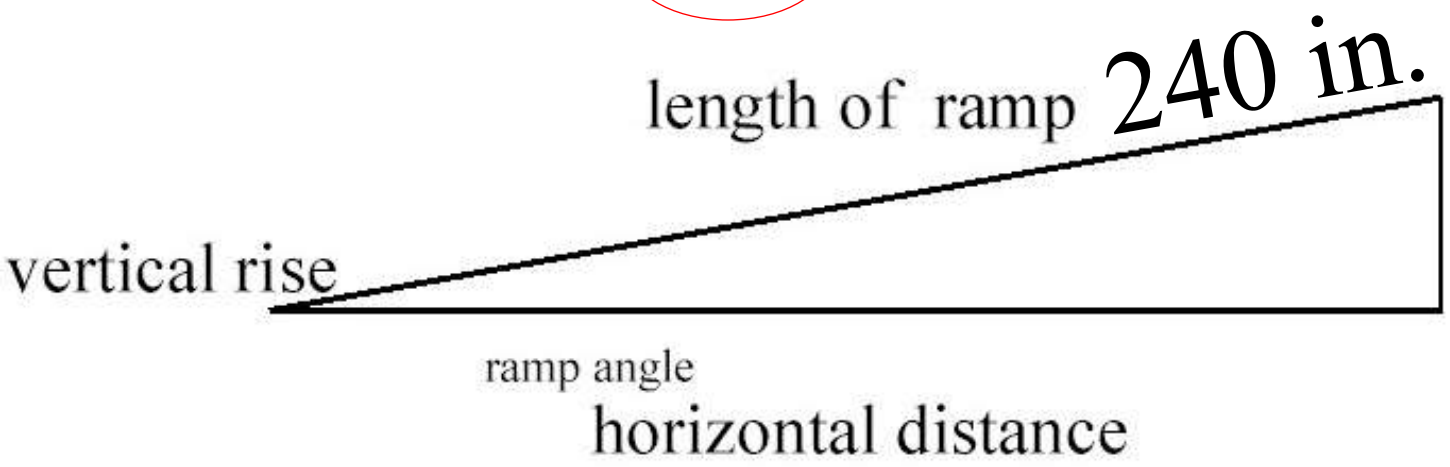


14. The Uniform Federal Accessibility Standards specify that the ramp angle used for wheelchair ramps be less than or equal to 4.76°. The length of one ramp is 20 feet. The vertical rise is 17 inches. Estimate the ramps horizontal distance and its ramp angle. Does it fall within the guidelines? (Hint: think about the measure.) Yes or No ???

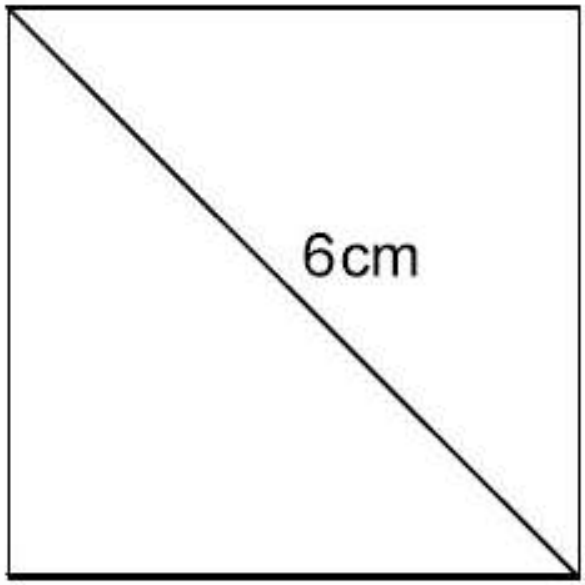
$$\sin A = \frac{17}{240}$$

$$\sin^{-1}\left(\frac{17}{240}\right)$$

4.1°



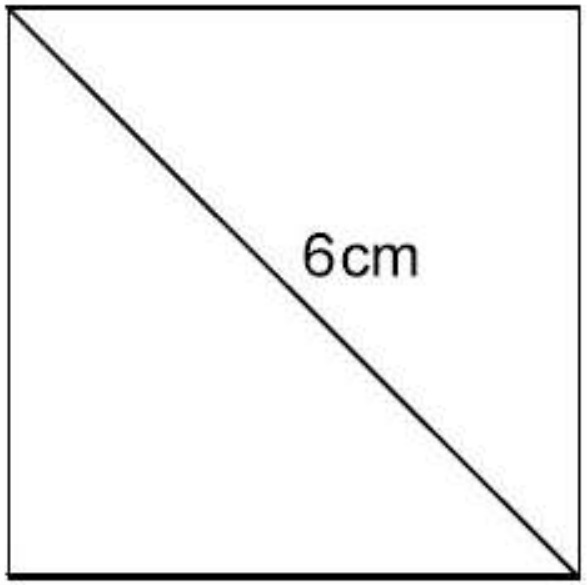
15. Find the perimeter of the square.



$12\sqrt{2}$

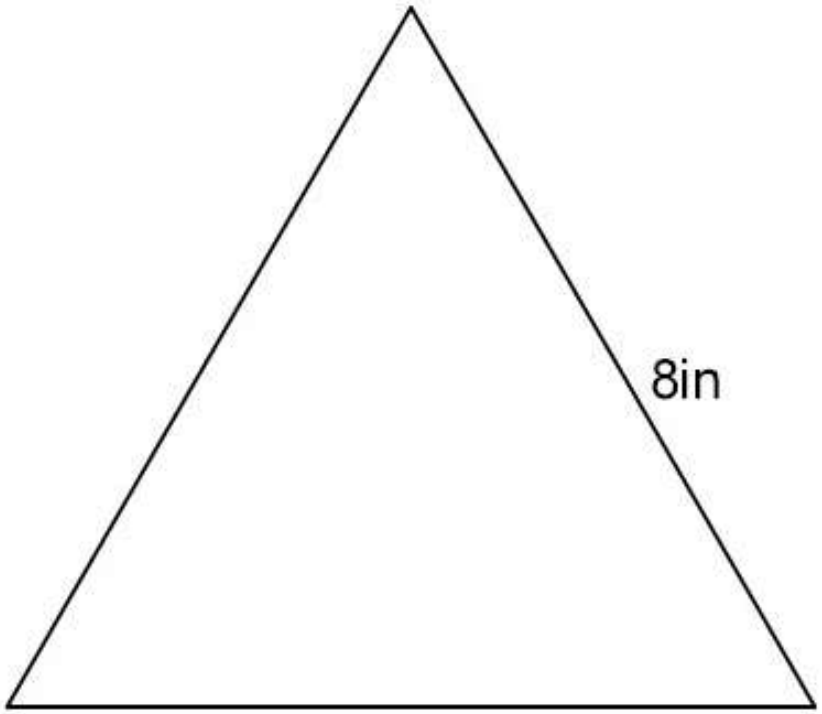
Check

15. Find the perimeter of the square.



$$\frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} \quad \frac{6\sqrt{2}}{2} \quad 3\sqrt{2} \cdot 4 = 12\sqrt{2}$$

16. Find the area of the equilateral triangle.

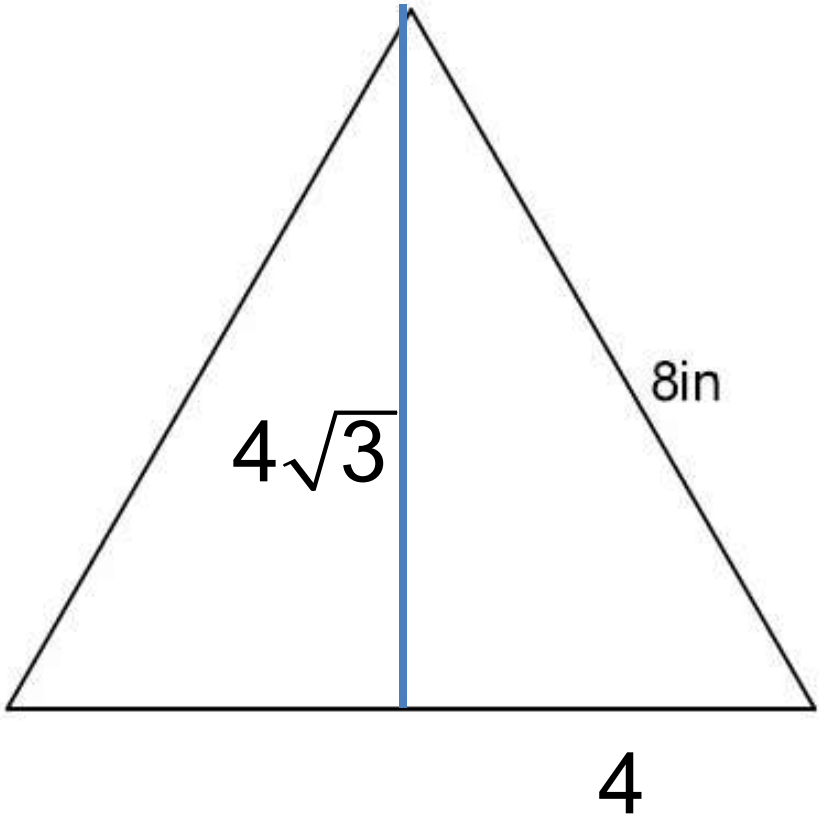


$16\sqrt{3}$ in^2

27.7 in^2

Check

16. Find the area of the equilateral triangle.



$$\frac{1}{2} \cdot b \cdot h$$

$$\frac{1}{2} \cdot 8 \cdot 4\sqrt{3}$$

$16\sqrt{3}$ in^2 $\approx$ 27.7 in^2

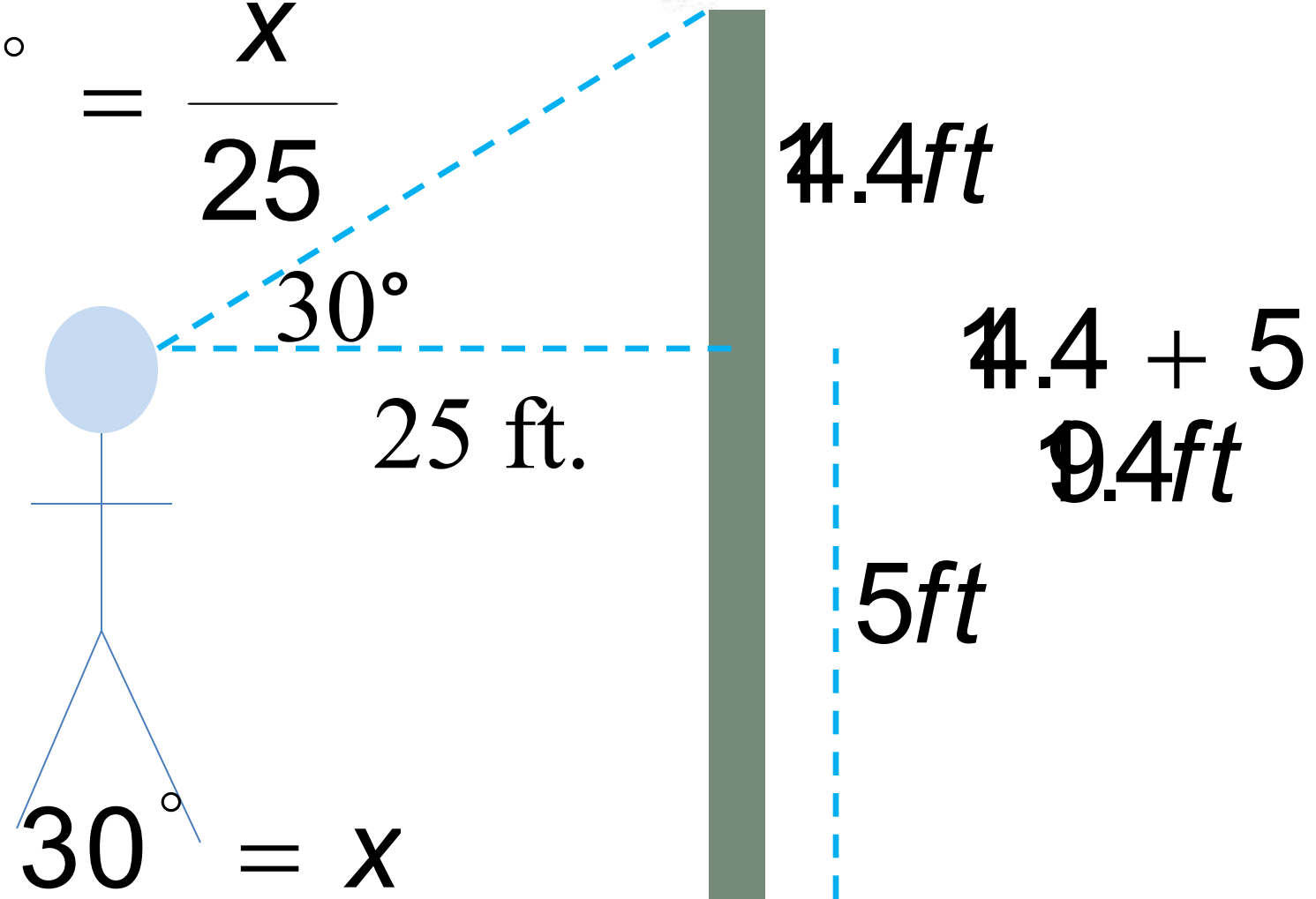
17. A 5 foot tall person is standing 25ft from a flagpole and the angle of elevation his eye makes with the top of the flagpole is 30°. How tall is the flagpole?

19.4*ft*

Check

17. A 5 foot tall person is standing 25 ft from a flagpole and the angle of elevation his eye makes with the top of the flagpole is 30°. How tall is the flagpole?

$$\tan 30^\circ = \frac{x}{25}$$



$$25 \tan 30^\circ = x$$

Test Tomorrow!!