

Right Triangles and Trigonometry Practice

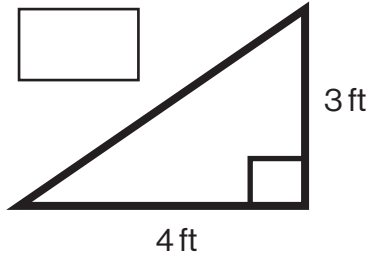
Name: _____

Date: _____

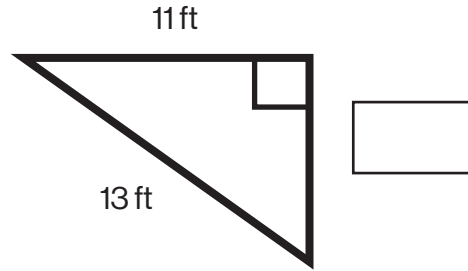
Question 1

Determine the unknown value (round to the nearest tenth)

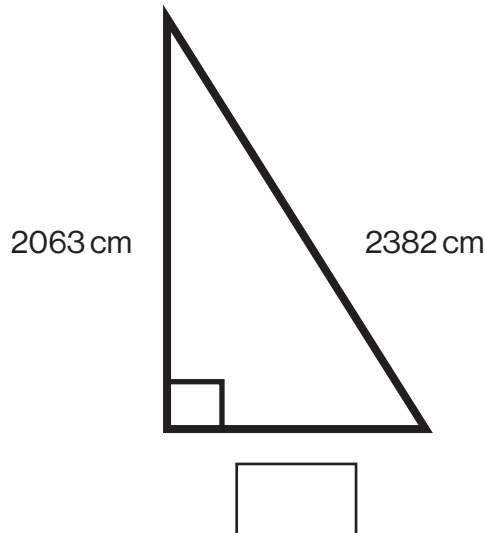
I.



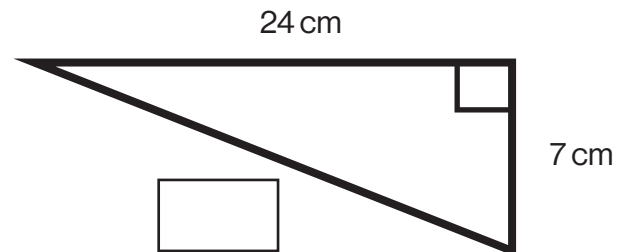
II.



III.

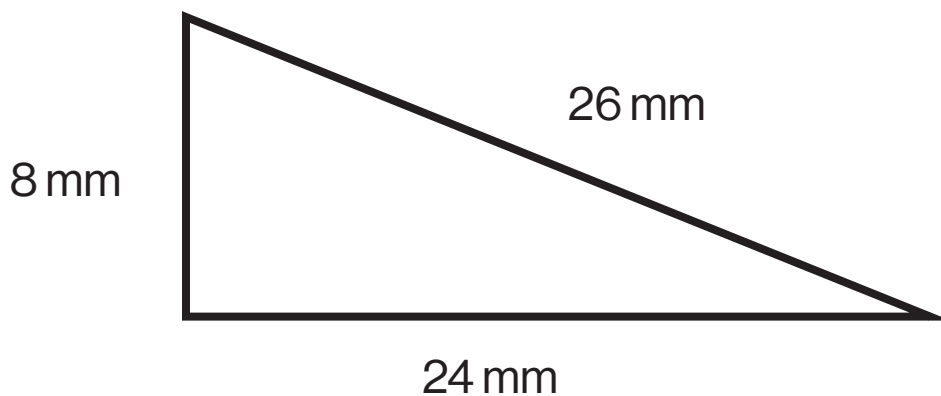


IV.



Question 2

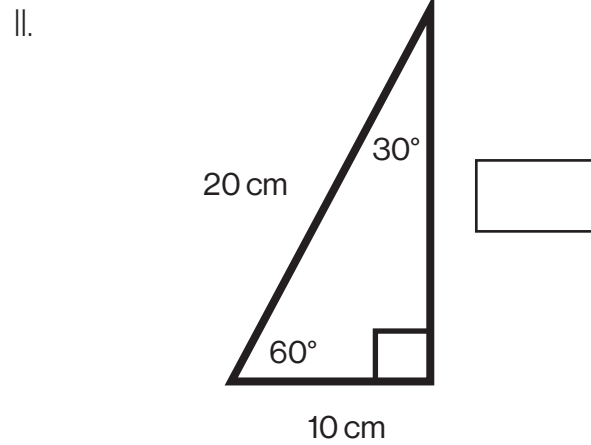
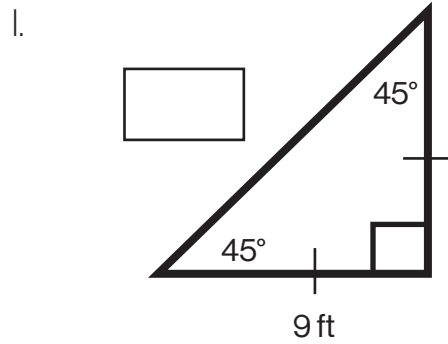
Determine if the triangle is a right triangle



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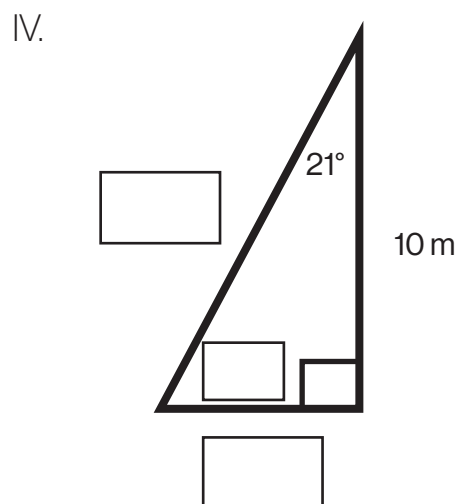
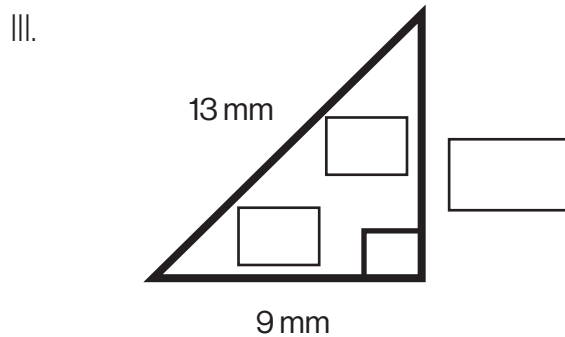
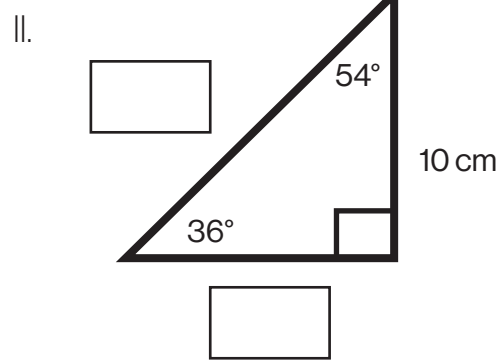
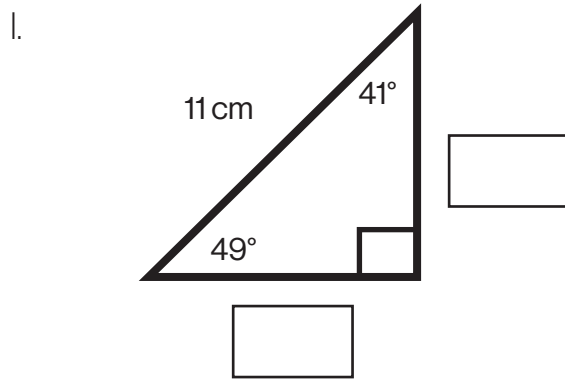
Question 3

Determine the unknown value (round to the nearest tenth)



Question 4

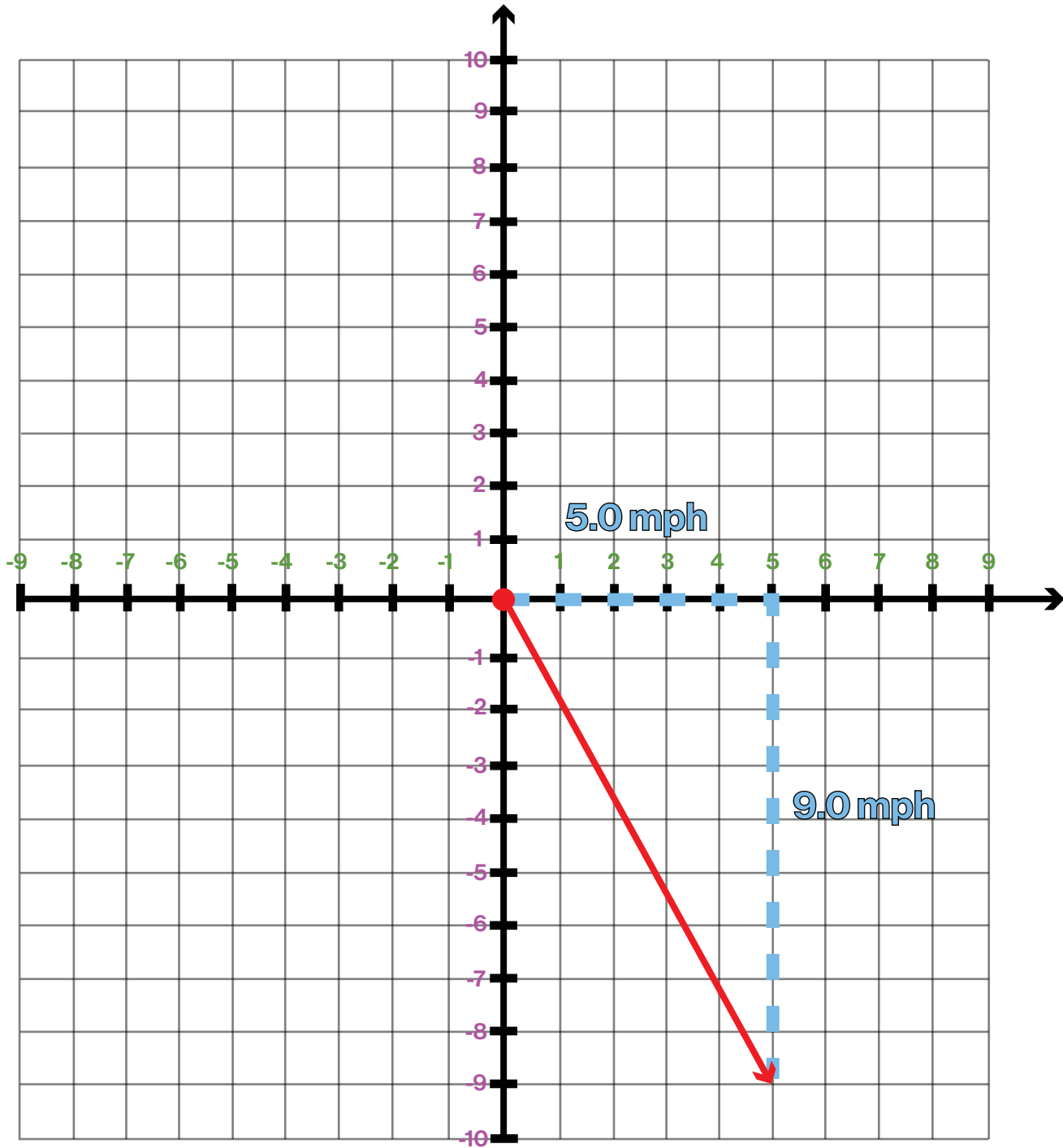
Determine the unknown value (round to the nearest tenth)



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Question 5

Determine the magnitude and direction of the vector

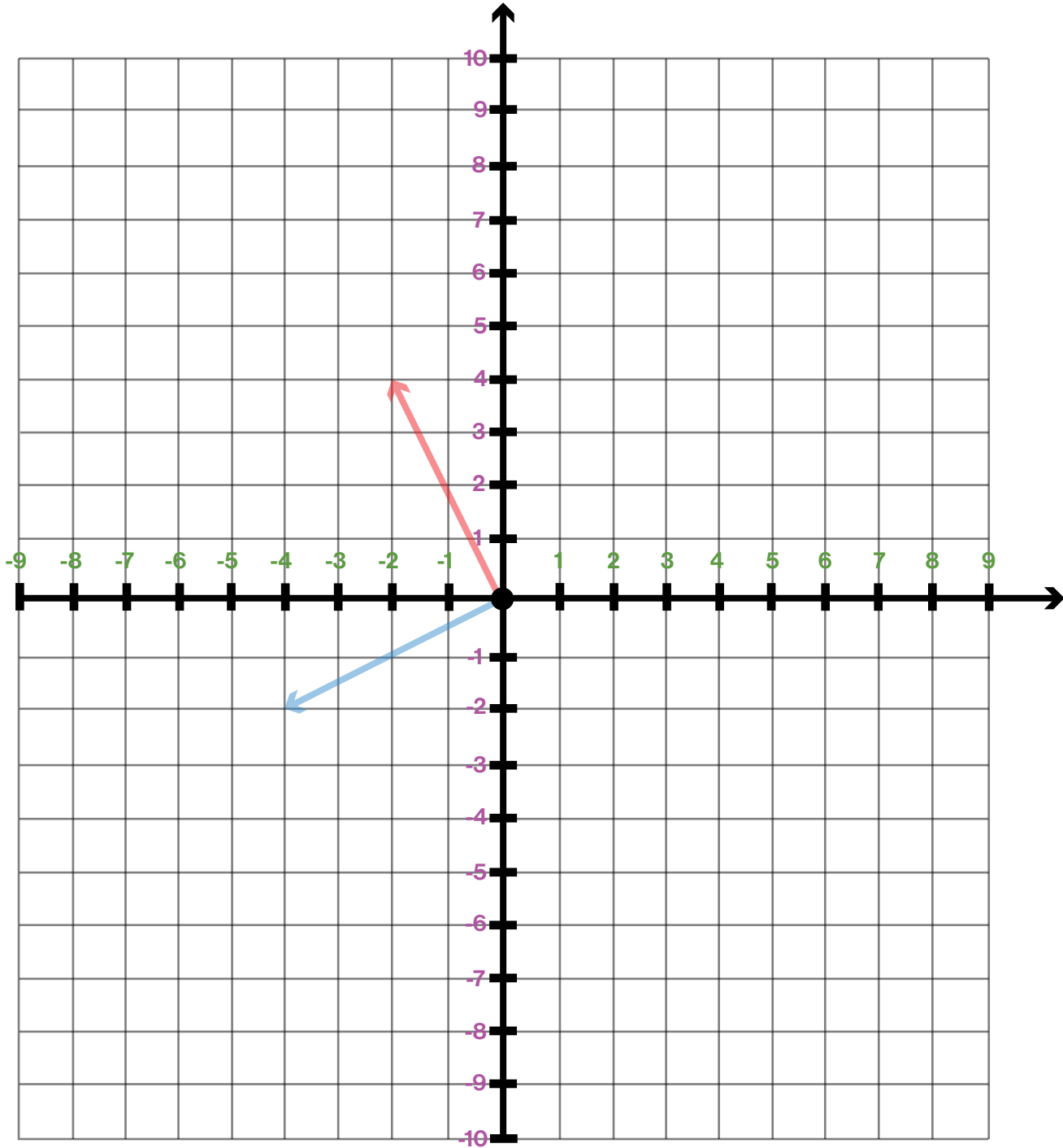


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Question 6

Solve the vector addition equation and draw the resultant vector

$$\vec{a} + \vec{b} = \vec{c}$$

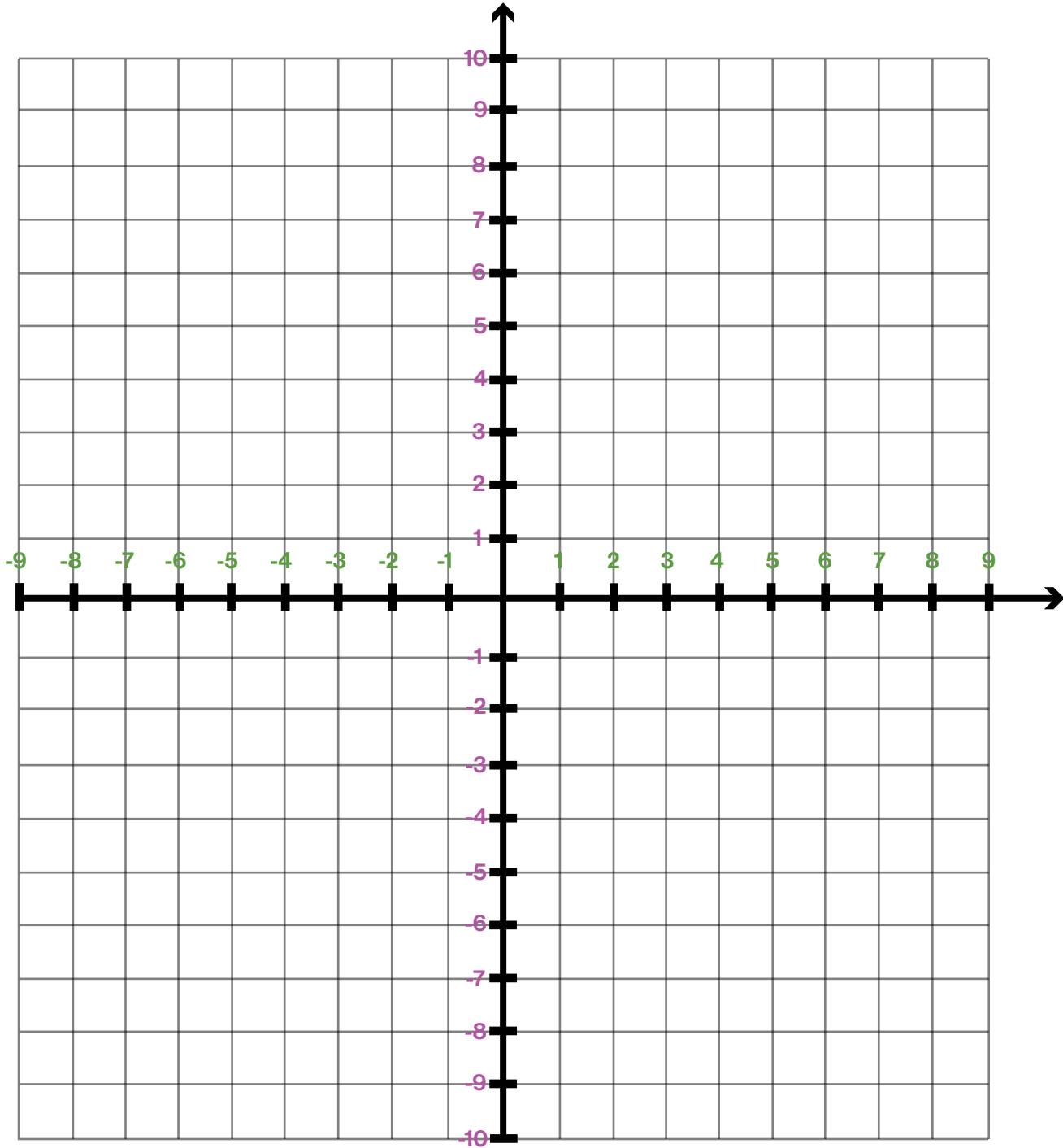


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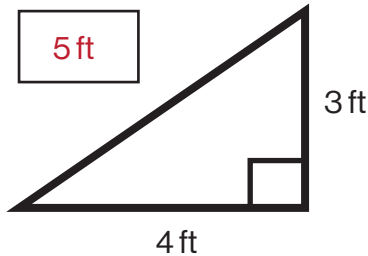
Name: _____ **Key** _____

Date: _____

Question 1

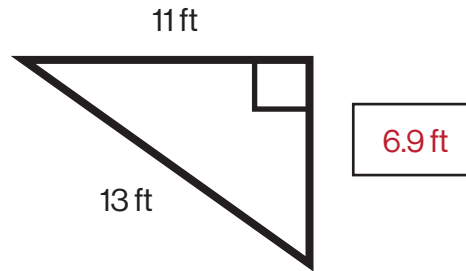
Determine the unknown value (round to the nearest tenth)

I.



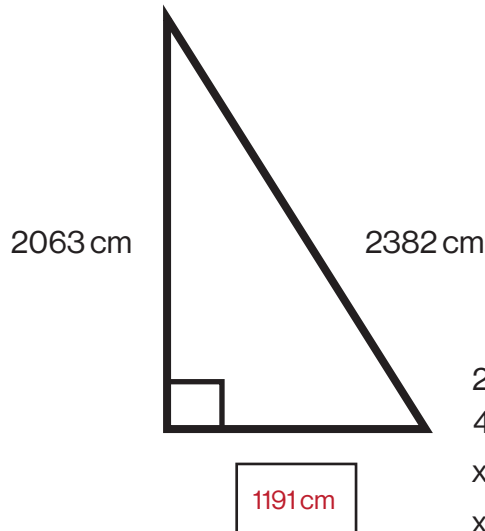
$$\sqrt{(4)^2 + (3)^2} = 5$$

II.



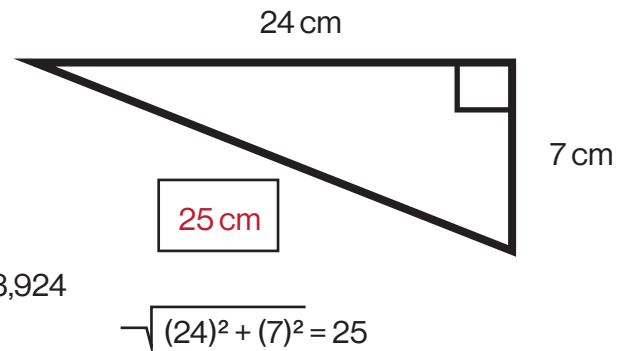
$$\begin{aligned} 11^2 + x^2 &= 13^2 \\ 121 + x^2 &= 169 \\ x^2 &= 48 \\ x &= \sqrt{48} \\ x &= 4\sqrt{3} \\ x &\approx 6.9 \end{aligned}$$

III.



$$\begin{aligned} 2063^2 + x^2 &= 2382^2 \\ 4,255,969 + x^2 &= 5,673,924 \\ x^2 &= 1,417,955 \\ x &= \sqrt{1,417,955} \\ x &= 1191 \end{aligned}$$

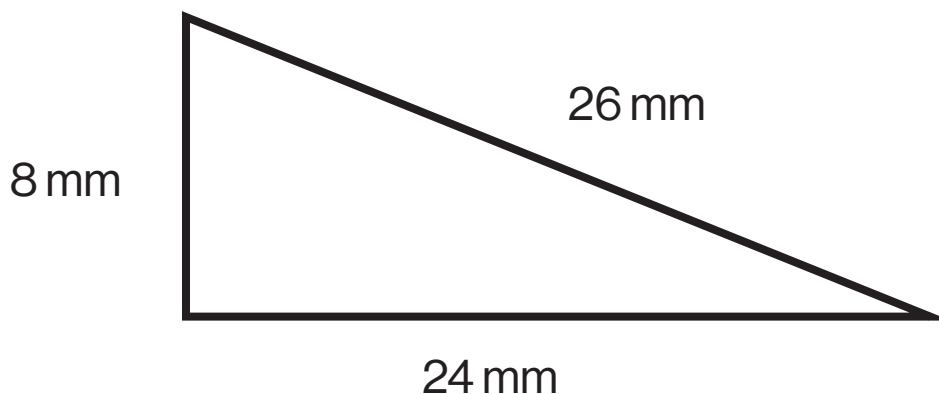
IV.



$$\sqrt{(24)^2 + (7)^2} = 25$$

Question 2

Determine if the triangle is a right triangle



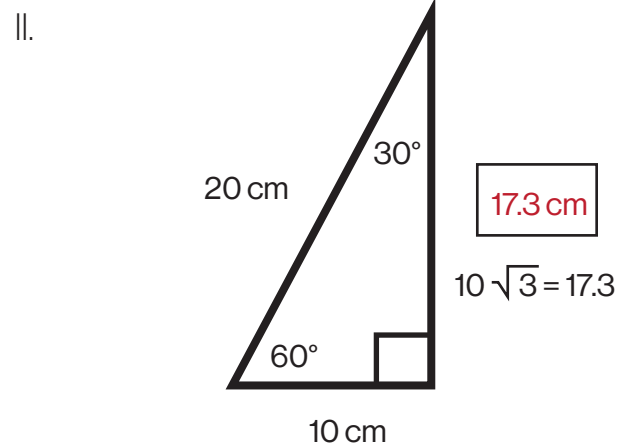
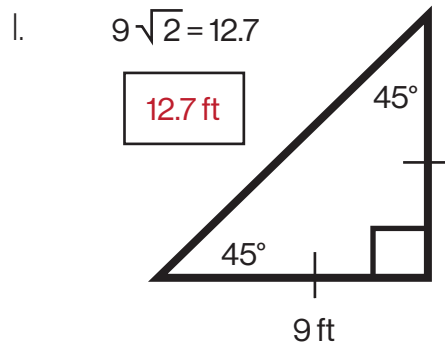
$$\sqrt{(24)^2 + (8)^2} = 8\sqrt{10} \approx 25.3 \neq 26$$

not a right triangle

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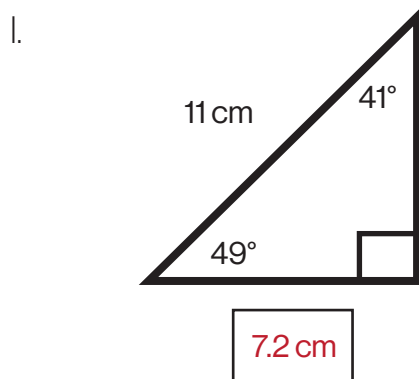
Question 3

Determine the unknown value (round to the nearest tenth)



Question 4

Determine the unknown value (round to the nearest tenth)



II.

$$\sin(36^\circ) = 10 / x$$

$$\sin(36^\circ) \cdot x = 10$$

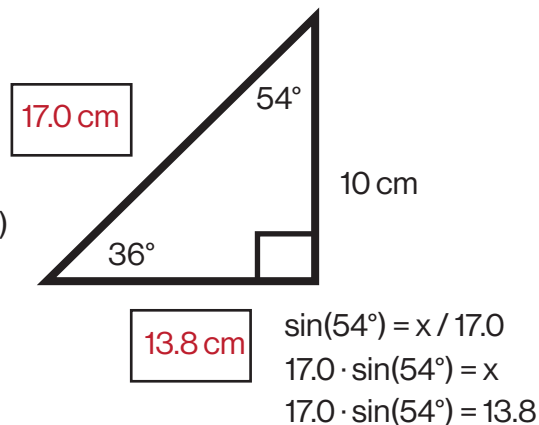
$$x = 10 / \sin(36^\circ)$$

$$17.0 = 10 / \sin(36^\circ)$$

$$\cos(41^\circ) = x / 11$$

$$11 \cdot \cos(41^\circ) = x$$

$$11 \cdot \cos(41^\circ) = 8.3$$



$$\sin(41^\circ) = x / 11$$

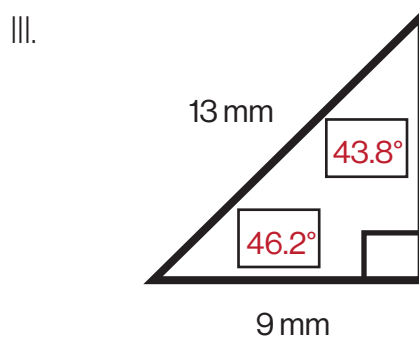
$$11 \cdot \sin(41^\circ) = x$$

$$11 \cdot \sin(41^\circ) = 7.2$$

$$\sin(54^\circ) = x / 17.0$$

$$17.0 \cdot \sin(54^\circ) = x$$

$$17.0 \cdot \sin(54^\circ) = 13.8$$



$$\sin(x^\circ) = 9 / 13$$

$$x^\circ = \sin^{-1}(9 / 13)$$

$$43.8^\circ = \sin^{-1}(9 / 13)$$

$$9^2 + x^2 = 13^2$$

$$81 + x^2 = 169$$

$$x^2 = 88$$

$$x = \sqrt{88}$$

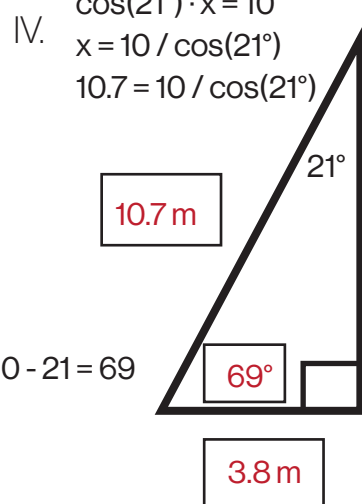
$$x = 2\sqrt{22}$$

$$x = 9.4$$

$$\cos(x^\circ) = 9 / 13$$

$$x^\circ = \cos^{-1}(9 / 13)$$

$$46.2^\circ = \cos^{-1}(9 / 13)$$



$$180 - 90 - 21 = 69$$

$$\tan(21^\circ) = x / 10$$

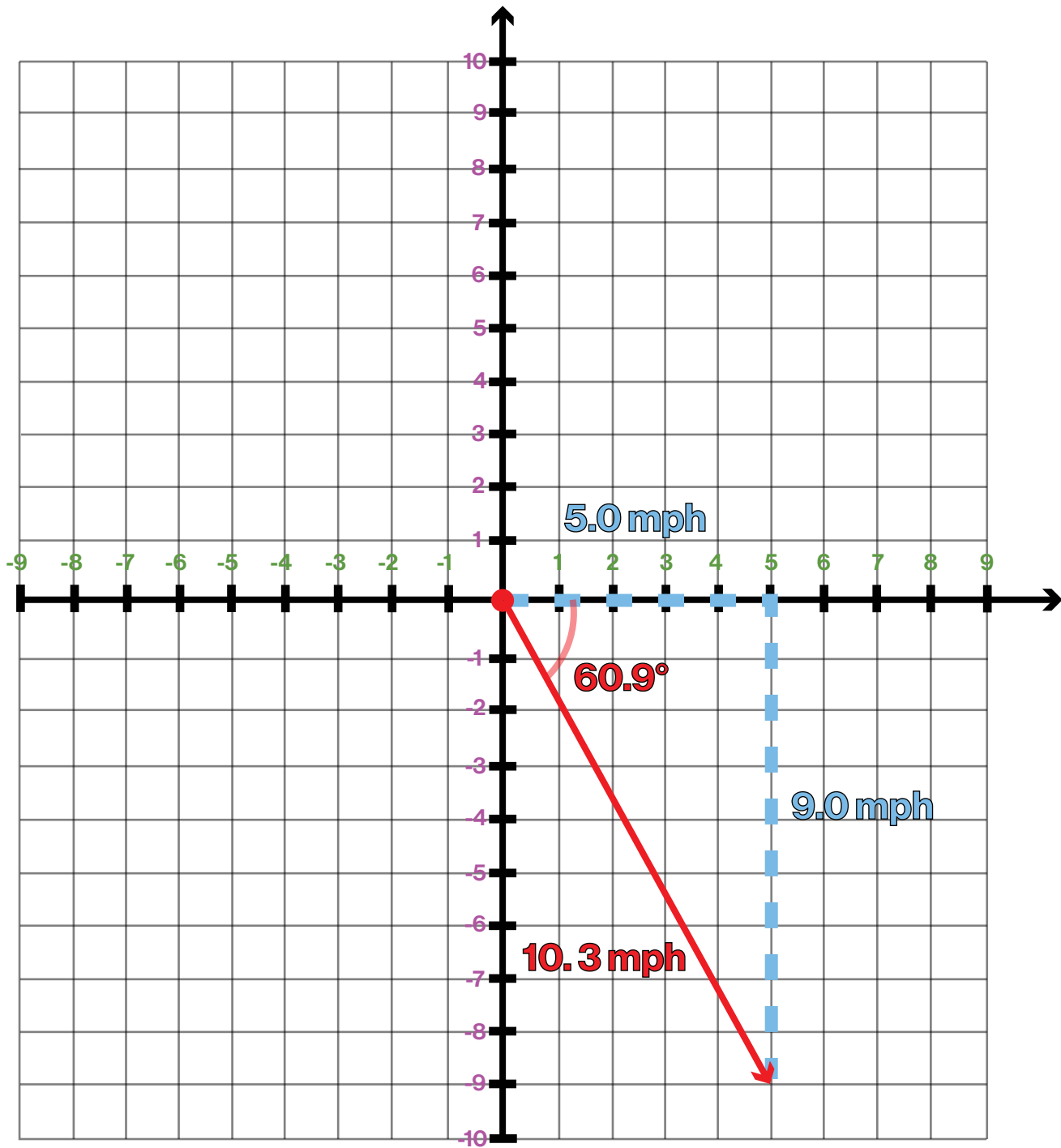
$$10 \cdot \tan(21^\circ) = x$$

$$10 \cdot \tan(21^\circ) = 3.8$$

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Question 5

Determine the magnitude and direction of the vector



$$\sqrt{(5.0)^2 + (9.0)^2} = 10.3$$

$$\tan(x^\circ) = 9.0 / 5.0$$

$$x^\circ = \tan^{-1}(9.0 / 5.0)$$

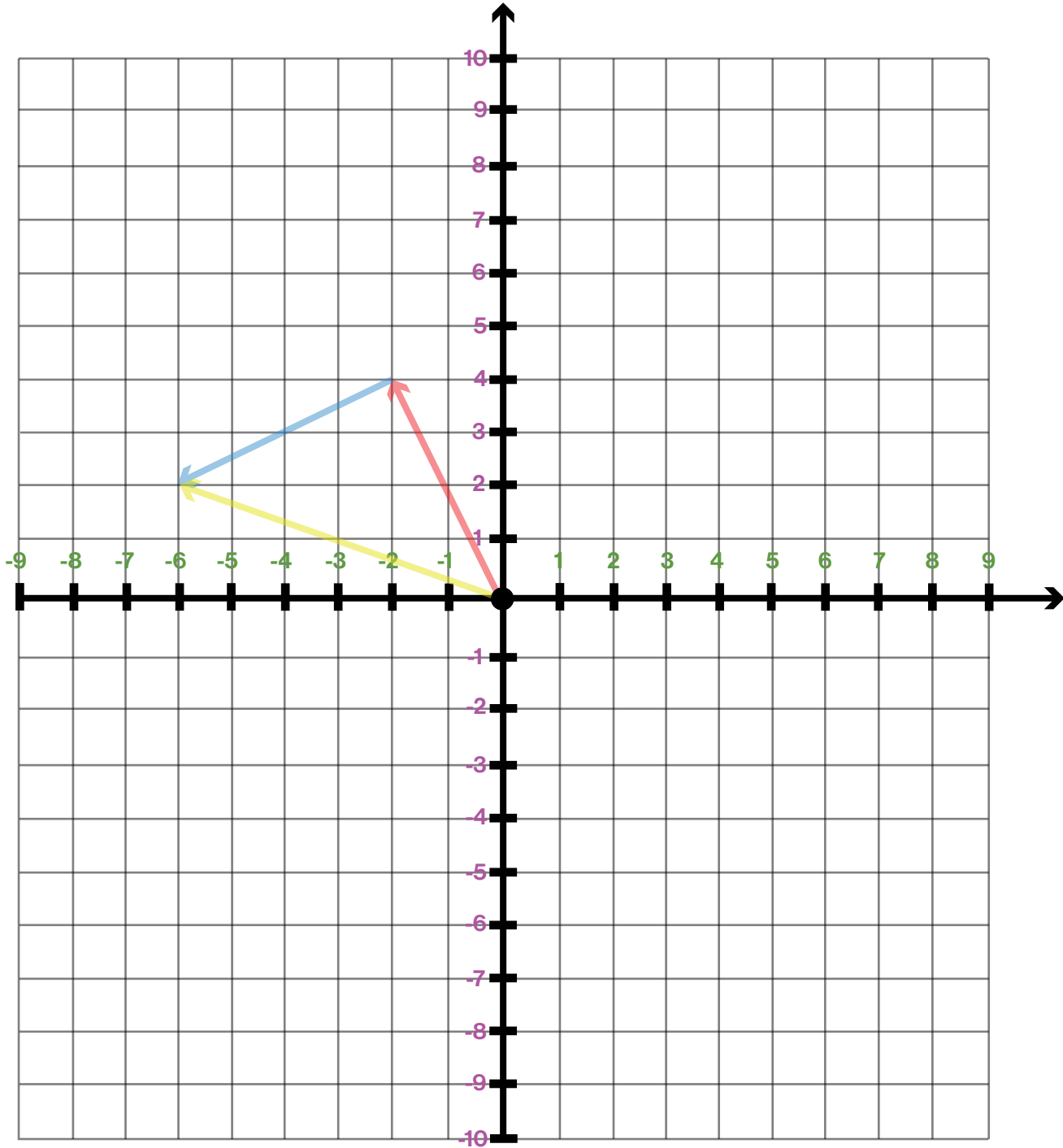
$$60.9^\circ = \tan^{-1}(9.0 / 5.0)$$

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Question 6

Solve the vector addition equation and draw the resultant vector

$$\vec{a} + \vec{b} = \vec{c}$$



$$\langle -2 + -4, 4 + -2 \rangle = \langle -6, 2 \rangle$$