



Name _____ Hour _____



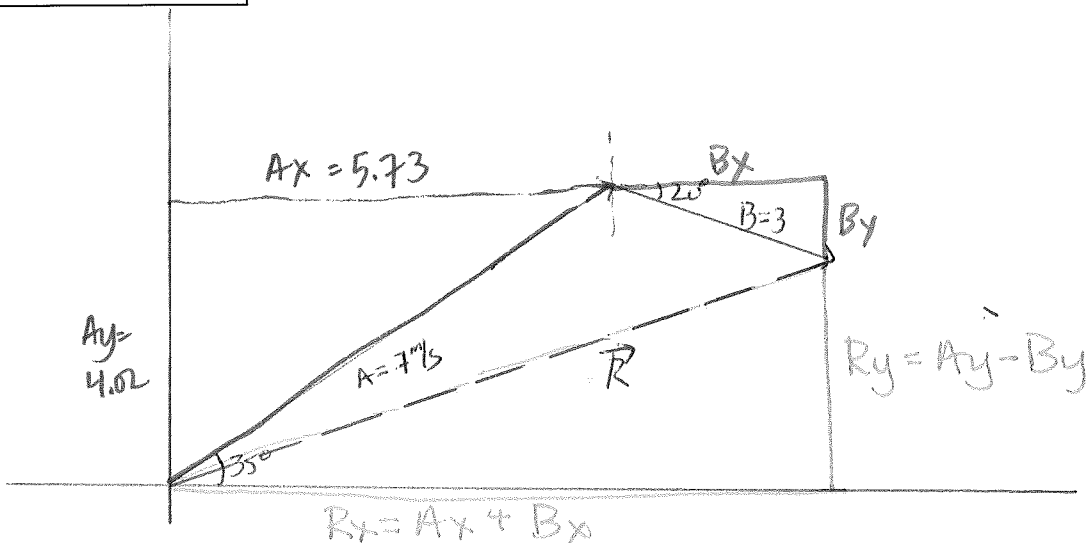
Extra Example or Practice Problem:

A sparrow is flying at 7 m/s at 35° N of E, but then there is a wind blowing at 3 m/s at 20° S of E.
Find the velocity of the sparrow. (the bird, not Jack Sparrow ☺)

a) graphically.

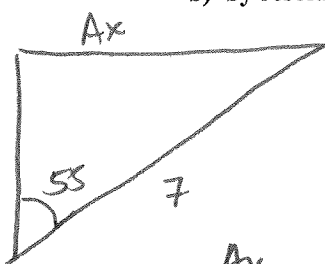
R = _____ at _____ of _____

Scale:



b) by resolution into components.

R = $9.06 \frac{m}{s}$ at 19.3° N of E

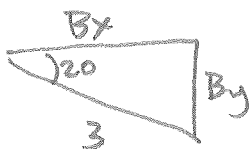


$$\sin 55 = \frac{A_y}{7}$$

$$A_y = 5.73$$

$$\cos 55 = \frac{A_x}{7}$$

$$A_x = 4.02$$

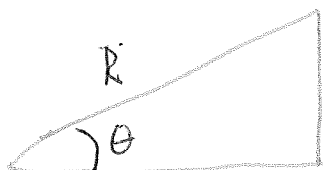


$$\sin 20 = \frac{B_y}{3}$$

$$B_y = 1.03$$

$$\cos 20 = \frac{B_x}{3}$$

$$B_x = 2.82$$



$$R_x = A_x + B_x$$

$$(5.73) + (2.82)$$

$$R_x = 8.55$$

$$R_y = A_y - B_y$$

$$4.02 - 1.03$$

$$R_y = 2.99$$

magnitude:

$$R^2 = R_x^2 + R_y^2$$

$$R^2 = 8.55^2 + 2.99^2$$

$$R^2 = 82$$

$$R = 9.06 \frac{m}{s}$$

direction:

$$\tan \theta = \frac{R_y}{R_x} = \frac{2.99}{8.55}$$

$$\tan \theta = .3497$$

$$\theta = 19.3^\circ$$



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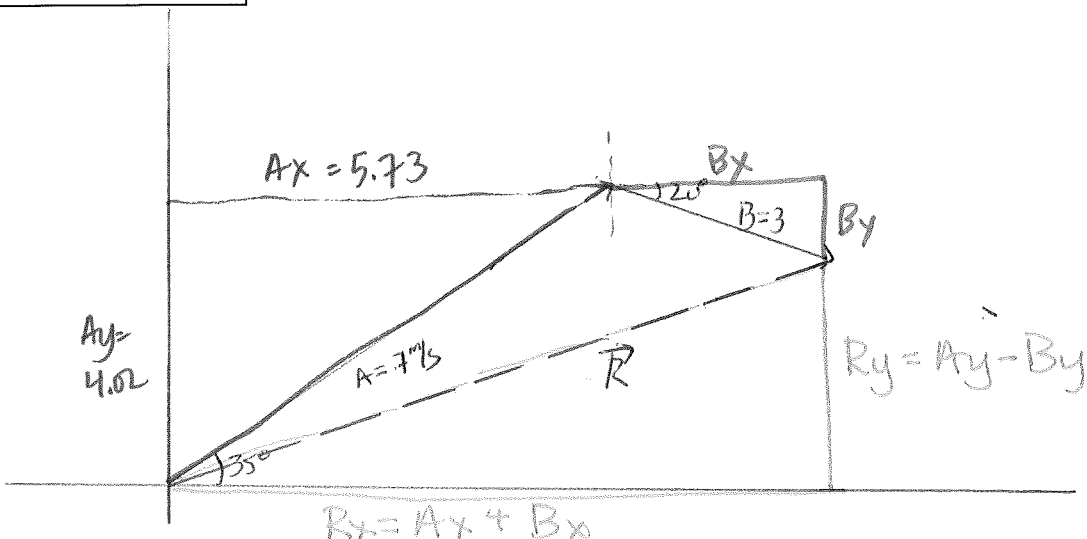
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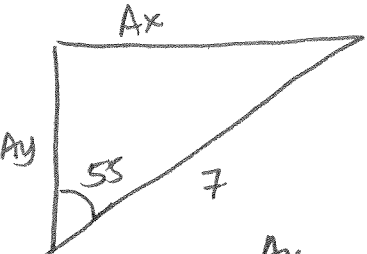
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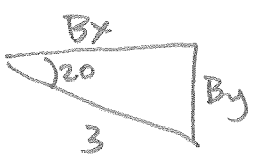


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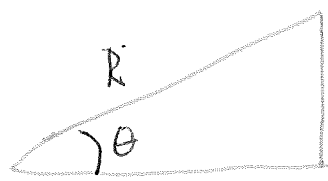


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$$R = 9.06 \frac{m}{s}$$

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