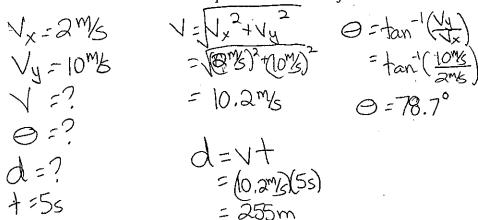
Topic 1C: Constant Velocity Skill 10 (Relative Velocity)

43. What is the resultant velocity of a person walking 2 m/s east on a ship that is moving north at 10 m/s? What is the resultant displacement of the object after 5 seconds?



44. What is the horizontal velocity of an object that has a resultant velocity of 30 m/s if the vertical velocity is 20 m/s north? What is the direction of the resultant motion?

$$\sqrt{30\%}$$
 $\sqrt{12} + \sqrt{2}$
 $\sqrt{1$

45. A ball launched at an angle of 60 degrees with a velocity of 15m/s. What are the horizontal and vertical components of the ball?

$$0 = 60^{\circ}$$
 $V_{x} = V \cos 0$ $V_{y} = V \sin 0$ $V_{x} = 15 \text{m/s} \cos 60^{\circ}$ $= 13 \text{m/s}$ $V_{x} = 7.5 \text{m/s}$ $= 7.5 \text{m/s}$

Topic 1C: Constant Velocity

46. A canoe in an eastward current is traveling at an angle of 70 degrees relative to the shore.

a) If the canoeist is paddling north with a velocity of 3m/s, determine the velocity of the canoe.

canoe.
$$V_y = 3^{m/s}$$
 $V_y = V \sin 0$ $0 = 70^{\circ}$ $3^{m/s} : V \sin 70^{\circ}$ $V = 3.2^{m/s}$

b) Determine the eastward velocity of the current.

$$V_x=?$$

$$V_y=3m/s$$

$$O=70^{\circ}$$

$$V_x=\frac{v_y}{tano}=\frac{3m/s}{tan70^{\circ}}=1.1m/s$$