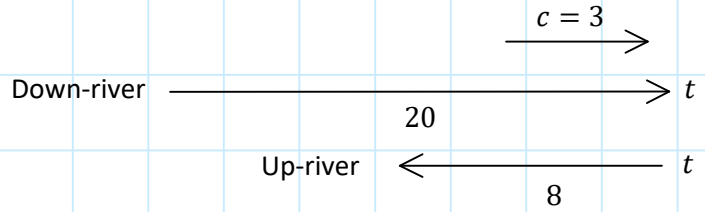


C11 - 6.8 - Speed Distance Time Notes

Mary paddles down river 20km with a current of 3km/h. It takes her the same time to paddle up river 8km. What is the speed of the boat?

	Speed	Distance	Time
Down-river	$v_b + 3$	20	t
Up-river	$v_b - 3$	8	t



Let $v_b = \text{velocity of boat}$
 $t = \text{time}$

Down river

$$v = \frac{d}{t}$$

$$v_b + 3 = \frac{20}{t}$$

$$v_b = \frac{20}{t} - 3$$

$$v_b = v_b$$

$$\frac{20}{t} - 3 = \frac{8}{t} + 3$$

$$\left(\frac{20}{t} - 3 = \frac{8}{t} + 3\right) \times \text{LCD: } t$$

$$20 - 3t = 8 + 3t$$

$$12 = 6t$$

$$t = 2s$$

Up river

$$v = \frac{d}{t}$$

$$v_b - 3 = \frac{8}{t}$$

$$v_b = \frac{8}{t} + 3$$

$$v_b = \frac{8}{t} + 3$$

$$v_b = \frac{8}{2} + 3$$

$$v_b = 7 \frac{\text{km}}{\text{hr}}$$

$$v = \frac{d}{t}$$

Isolation

Substitution

Solve

Substitution

LCD = t

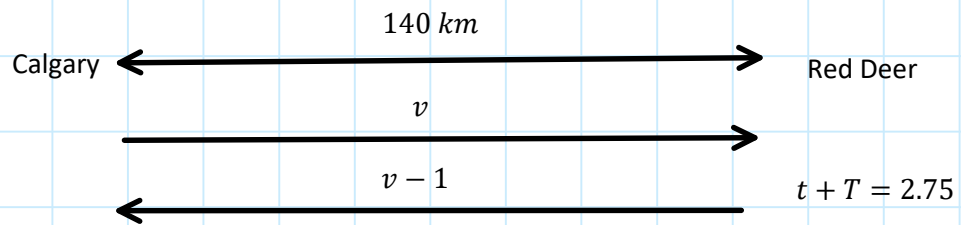
Solve

Mike travels one km per hour faster and completes 4 km 1 minute faster than Sue? How fast are they travelling?

let $v = \text{speed}$

let $t = \text{time } C \rightarrow R$

let $T = \text{time } R \rightarrow C$



$$v = \frac{d}{t}$$

$$v = \frac{140}{t}$$

$$v = \frac{d}{T}$$

$$v - 1 = \frac{140}{T}$$

$$T = 2.75 - t$$

$$\frac{140}{t} - 1 = \frac{140}{2.75 - t}$$

$$v = \frac{140}{1.30764}$$

$$v = 107.06$$

$$t = 1.30764$$

LCD
 Quadform

$$T = 1.44236$$