

Exam Review - Problem

1. Textbook: Page 646, #11-14
Textbook: Page 655, #20-24
Textbook: Page 678, 42-45, 47, 50
Textbook: Page 696, #4-10
 #4. 4.00 V (text: 40.0 V)
 #8. 75 s (text: 57 s)
Textbook: Page 708, #16-20
Textbook: Page 714, #21-26
Textbook: Page 719, #27-31
2. Parallel Circuits -> Continue
3. Textbook: Page 724, #32-35
4. Combination/Complex Circuits
5. Textbook: Page 728, #36-37
 Page 749, #33-34

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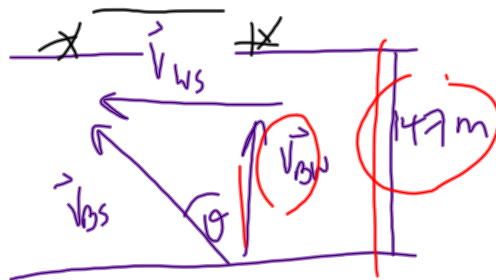
Concept: Relative Velocity



A snorkeler who can swim 1.20 m/s in still water aims his body north directly across a 147 m wide river.

The current is 0.79 m/s west.

- a) How long will it take him to reach the other side?
b) How far downstream (from a point opposite his starting point) will he land?
c) What is his velocity relative to the shore?



$$V = \frac{d}{t}$$
$$t = \frac{d}{V_{bw}}$$
$$t = \frac{147}{1.20}$$
$$t = 123 \text{ s}$$

b)

$$d = V_{ws} t$$
$$d = (0.79)(123)$$
$$d = 97 \text{ m}$$
$$9.7 \times 10^1 \text{ m}$$



c)

$$V_{bs} = \sqrt{(1.20)^2 + (0.79)^2}$$
$$V_{bs} = 1.4 \text{ m/s}$$

$$\tan \theta = \frac{0.79}{1.20}$$

$$\theta = 33^\circ$$

$$\vec{V}_{bs} = 1.4 \frac{\text{m}}{\text{s}}, 33^\circ \text{ W of N}$$