

Unit 2: Working With Rational Numbers

2.2 Problem Solving with Rationals as Decimals

Ex. Estimate, then calculate:

a) $-5.96 - (-6.83)$

$$\begin{aligned} & -6 - (-7) \\ \approx & 1 \end{aligned}$$

$$\begin{aligned} & \star \text{ calc} \\ & = 0.87 \end{aligned}$$

b) $-2.3 \div -0.25$

$$\begin{aligned} & \text{est} \\ & -2.4 \div -0.3 \\ & \quad \swarrow \quad \searrow \\ & -24 \div -3 \\ & \approx 8 \end{aligned}$$

$$\begin{aligned} & \star \text{ calc} \\ & = 9.2 \end{aligned}$$

$$\begin{aligned} & \text{est} \\ & -2.25 \div -0.25 \\ & \quad \swarrow \quad \searrow \\ & -225 \div -25 \\ & \approx 9 \end{aligned}$$

Ex. A balloon climbed at 0.8 m/s for 10 s. It then descended at 0.6 m/s for 6 s.

a) Write and evaluate a mathematical expression to determine the overall change in altitude.

$$D = (0.8)(10) + (-0.6)(6)$$

$$D = 8 + (-3.6)$$

$$D = 4.4 \text{ m}$$

$$\begin{array}{c} \triangle \\ \hline S \quad T \\ \hline D = S \times T \end{array}$$

b) What was the average rate of change in altitude?

ie. average velocity

$$= \frac{\text{average change}}{\text{time}}$$

$$= \frac{4.4 \text{ m}}{16 \text{ s}}$$

$$\approx = \frac{4}{16} = \frac{1}{4} = 0.25$$

$$= 0.275 \text{ m/s}$$