

Unit 2: Working With Rational Numbers

2.2 Problem Solving with Rationals as Decimals

Ex. Estimate, then calculate:

a) $-5.96 - (-6.83)$

Est.
 $\approx -6 + (+7)$
 ≈ 1

* calc
 $= \boxed{0.87}$

b) $-2.3 \div -0.25$

Est.
 $-2.4 \div -0.3$
 ≈ 8

* calc
 $= \boxed{9.2}$

Est.
 $-2.25 \div -0.25$
 ≈ 9

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.

$+0.8 \text{ m/s}$ -0.6 m/s

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

$$= 8 + (-3.6)$$

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

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

- b) What was the average rate of change in altitude? i.e. average velocity

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

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

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

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

* mean = average