Name: _____ Date: _____

2.2 Problem Solving With Rational Numbers in Decimal Form

Check Your Understanding

Communicate the Ideas

1. **a)** Do you think $-0.32 + 6.5$ will give a positive or negative answer? Give 1 reason for your answer.

_____

_____

b) Evaluate $-0.32 + 6.5$.

2. **a)** The products of these 2 expressions are _____.
(*the same* or *different*)

$2.54 \times (-4.22)$ -2.54×4.22

b) Give 1 reason for your answer.

_____

Practise

3. Estimate and calculate.

a) $0.9 + (-0.2)$

Estimate:

$\approx$ _____ + _____

$\approx$ _____

Calculate:

b) $0.34 + (-1.22)$

Estimate:

Calculate:

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4. Estimate and calculate.

a) $5.46 - 3.16$

Estimate:

$\approx$ _____ – _____

$\approx$ _____

Calculate:

b) $-1.49 - (-6.83)$

Estimate:

$\approx$ _____ – (_____)

$\approx$ _____ + (_____) Add the opposite.

$\approx$ _____

Calculate:

5. Estimate and calculate.

a) $2.7 \times (-3.2)$

Estimate:

Use the sign rules.

Calculate:

b) $-5.5 \times (-5.5)$

Estimate:

Calculate:

6. Estimate and calculate.

a) $(-40.4) \div (-4.04)$

Estimate:

Calculate:

b) $-3.25 \div 2.5$

Estimate:

Calculate:

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7. Evaluate. Use the order of operations.

a) $-2.1 \times 3.2 + 4.3 \times (-1.5)$

$= (_____) + (_____)$

$= _____$

b) $-1.1[2.3 - (-0.5)]$

When there is more than 1 set of brackets, use square brackets.

$= -1.1 \times [2.3 + _____]$ Add the opposite.

$= -1.1 \times _____$

$= _____$

Apply

8. The temperature in Kelowna went from −2.2 °C to −11.0 °C in 4 h.
How many degrees did the temperature drop per hour?

Temperature change = (_____) − (_____)

= _____

Total time = _____

Average temperature drop = $\frac{\text{temperature change}}{\text{total number of hours}}$

Sentence: _____

9. A pelican dives vertically from a height of 3.8 m above the water.
It then catches a fish 2.3 m underwater.
Sketch a diagram of the situation.

a) Write an expression using rational numbers to show the length of the pelican's dive.

Distance down to the water = _____

Distance from the top of the water to the fish = _____

Expression: _____

b) How far did the pelican dive?

Solve the expression.

Sentence: _____

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10. A submarine was cruising at a depth of 304.5 m. It then rose at 10.5 m per minute. How many minutes did it take to reach the surface?

Sentence: _____

11. A company made a profit of $8.6 million in its first year. It lost $5.9 million in its second year. It lost another $6.3 million in its third year.

a) After 3 years, did the company make or lose money? Show your calculations.

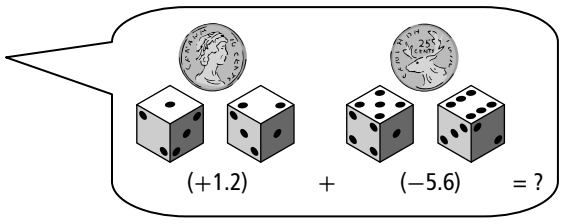
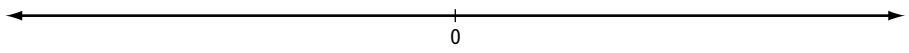
Sentence: _____

b) What was the average amount of money the company made or lost per year?

$$\text{Average} = \frac{\text{sum of numbers}}{\text{number of years}}$$

Sentence: _____

Math Link

Play this game with a partner. You will need 2 dice and 1 coin.

- Roll 2 dice, one at a time. The numbers on the dice create a decimal number. Example: rolling 6, then 5 means 6.5.
- Toss the coin. Tossing heads means the rational number is positive. Tossing tails means the rational number is negative.
- Roll the dice and toss the coin again to get your second number.
- Add the 2 numbers.
- The person with the sum closest to 0 wins 2 points. If there is a tie, each person wins 1 point.
- The first player to reach 10 points wins.