Curriculum Outcome

General Outcome: Develop number sense and critical thinking skills.

N1 Solve problems that involve unit pricing and currency exchange, using proportional reasoning.

N2 Demonstrate an understanding of income, including: wages, salary, contracts, commission, piecework, and calculating gross pay and net pay.

N3 Demonstrate an understanding of compound interest.

N4 Demonstrate an understanding of financial institution services used to access and manage finances.

N5 Demonstrate an understanding of credit options, including: credit cards, and loans.

Student Friendly:

Sep 7-2:50 PM

MATH *ON THE JOB*

"In 1997, I moved back to the old family homestead, turning the place into an organic, small plot gardening, herb farm and an informal learning centre. We grow food, flowers, garlic, herbs, and wheatgrass," says Pam Trenholm. Pam is a farmer who operates Brighton Botanicals, located near Hartland, New Brunswick. She attended Hartland High School and later took business courses at Carleton County Vocational School in Woodstock, New Brunswick.

Pam's job includes ordering seeds, selling produce, and planting and caring for crops. Pam needs to fertilize a crop with an organic liquid fertilizer that is mixed with water. Five hundred mL of fertilizer is mixed with 60 L of water. If Pam is using 750 mL of fertilizer, how much water does she need to add? How can Pam use proportional reasoning to solve this problem?

Pam (right) and her intern check plants to see if they have received enough nutrients.

METHOD 1: Set up a ratio by aligning the same units. Students may have seen this method in science class, where it is called dimensional analysis. Show the students that the same units (mL) should cancel each other out, leaving the desired units (L).

$$\frac{500\text{ mL}}{750\text{ mL}} = \frac{60\text{ L}}{x}$$

To solve for x, multiply both sides of the equation by the common denominator, $300x$.

$$750x\left(\frac{500}{750}\right) = \left(\frac{60}{x}\right)750x$$

$$\frac{375\,000x}{750} = \frac{45\,000x}{x}$$

Simplify each side of the equation by dividing by the denominator.

$$500x = 45\,000$$

Divide each side by the coefficient of the variable, 500.

$$\frac{500x}{500} = \frac{45\,000}{500}$$

$$x = 90\text{ L}$$

Nov 29-11:42 PM

Pam's job includes ordering seeds, selling produce, and planting and caring for crops. Pam needs to fertilize a crop with an organic liquid fertilizer that is mixed with water. Five hundred mL of fertilizer is mixed with 60 L of water. If Pam is using 750 mL of fertilizer, how much water does she need to add? How can Pam use proportional reasoning to solve this problem?

$\frac{f}{w} = \frac{500\text{ mL}}{60\text{ L}} = \frac{750\text{ mL}}{x}$

$\frac{x\,(500\text{mL})}{500\text{ mL}} = \frac{45\,000\text{ mL}}{500\text{mL}}$

$x = 90\text{ L}$

f : w

500 : 60 ↘ 1.50

1.50 ↘ 750 : x

↳ x = 90

Nov 20-12:31 PM

$\frac{9}{2} = \frac{12}{5} = \frac{24}{x}$

Nov 20-2:29 PM

MATH *ON THE JOB*

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Pam (right) and her intern check plants to see if they have received enough nutrients.

METHOD 2: Find the unit amount of L/mL first by dividing the numerator by the denominator, 500.

$$\frac{60\text{ L}}{500\text{ mL}} = \frac{0.12\text{ L}}{1\text{ mL}}$$

For every mL of fertilizer, 0.12 L of water is added. Multiply to find the amount of water needed for 750 g of liquid fertilizer.

$$0.12 \times 750 = 90$$

The farmer must add 90 L of water to 750 g of fertilizer.

Nov 20-8:06 AM

Recipe #1

3 cups of concentrate
7 cups of water

You only want to make 8 cups of Recipe #1. How many cups of concentrate and how many cups of water will you need? Explain your solution.

Batch Total

$$\frac{\text{\# of concentrate}}{\text{\# of water}} = \frac{3}{7}$$

Total # = 10

Total Ratio

Let x = concentrate

$$\frac{\text{\# of concentrate}}{\text{Total}} = \frac{3}{10} = \frac{x}{8}$$

$$10x = 24$$

$$x = 2.4$$

2.4 Cups of Concentrate

Water = Total # - Concentrate

Water = 8 - 2.4

Water = 5.6

5.6 Cups of Water!!!!

Aug 26-7:44 PM

Recipe #2

2 cups of concentrate
5 cups of water

You want to make 12 cups of Recipe #2. How many cups of concentrate and water will you need?

Batch Total

$\frac{\text{\# of concentrate}}{\text{\# of water}} = \frac{2}{5}$

Total # = 7

Total Ratio

Let x = concentrate

$\frac{\text{\# of concentrate}}{\text{Total}}$

$\frac{2}{7} = \frac{x}{12}$

$7x = 24$

$x = 3.4$ cups

Water = Total # - Concentrate

Water = 12 - 3.4

Water = 8.6

8.6 Cups of Water!!!!

Feb 1-12:34 PM

Recipe #2

2 cups of concentrate
5 cups of water

You want to make 12 cups of Recipe #2. How many cups of concentrate and water will you need?

C W T

2 : 5 : 7

x : y : 12

$\frac{W}{T} \quad \frac{y}{12} = \frac{5}{7}$

$y = \frac{12(5)}{7}$

$y \doteq 8.6$

Nov 23-11:02 AM

Recipe #2
2 cups of concentrate
5 cups of water

You want to make 12 cups of Recipe #2. How many cups of concentrate and water will you need?

C : W = T

2 : 5 = 7

x : y = 12

$\frac{C}{T} = \frac{2}{7} = \frac{x}{12}$

$\frac{7x}{7} = \frac{24}{7}$

$x = 3.4$

Water

12 cup - 3.4

= 8.6 cups

Nov 20-11:00 AM

HOMEWORK: P. 21 #1 - 9.

1.1 Build Your Skills Detailed Solutions.pdf

Aug 26-7:57 PM

1) 4:1 or 1:4

2) ≈ 36.4 min

3) 75 min b) 7.5 min

4) 13
13:36

5) ≈ 121 cm

6) $637.50 b) $11475

7) $\frac{25\text{ kg}}{\$75}$ b) $\frac{20\text{ kg}}{\$60}$

8) O: M
5.14 : 6.86

Nov 23-11:12 AM

Nov 23-11:55 AM

1) 4:1 4/1 4 to 1

2) 36 min

3) i) 75 min ii) 7.5 min

4) i) 13 ii) 13:36

5) 121

6) $637.50 for 50 dvd

900 dvds for $11 475.00

7) $\frac{25 kg}{\$75}$ and $\frac{20 kg}{\$60}$

8) red: 6.86L oak 5.14L

Nov 20-11:12 AM

Recipe #1

3 cups of concentrate
7 cups of water

You only want to make 8 cups of Recipe #1. How many cups of concentrate and how many cups of water will you need? Explain your solution.

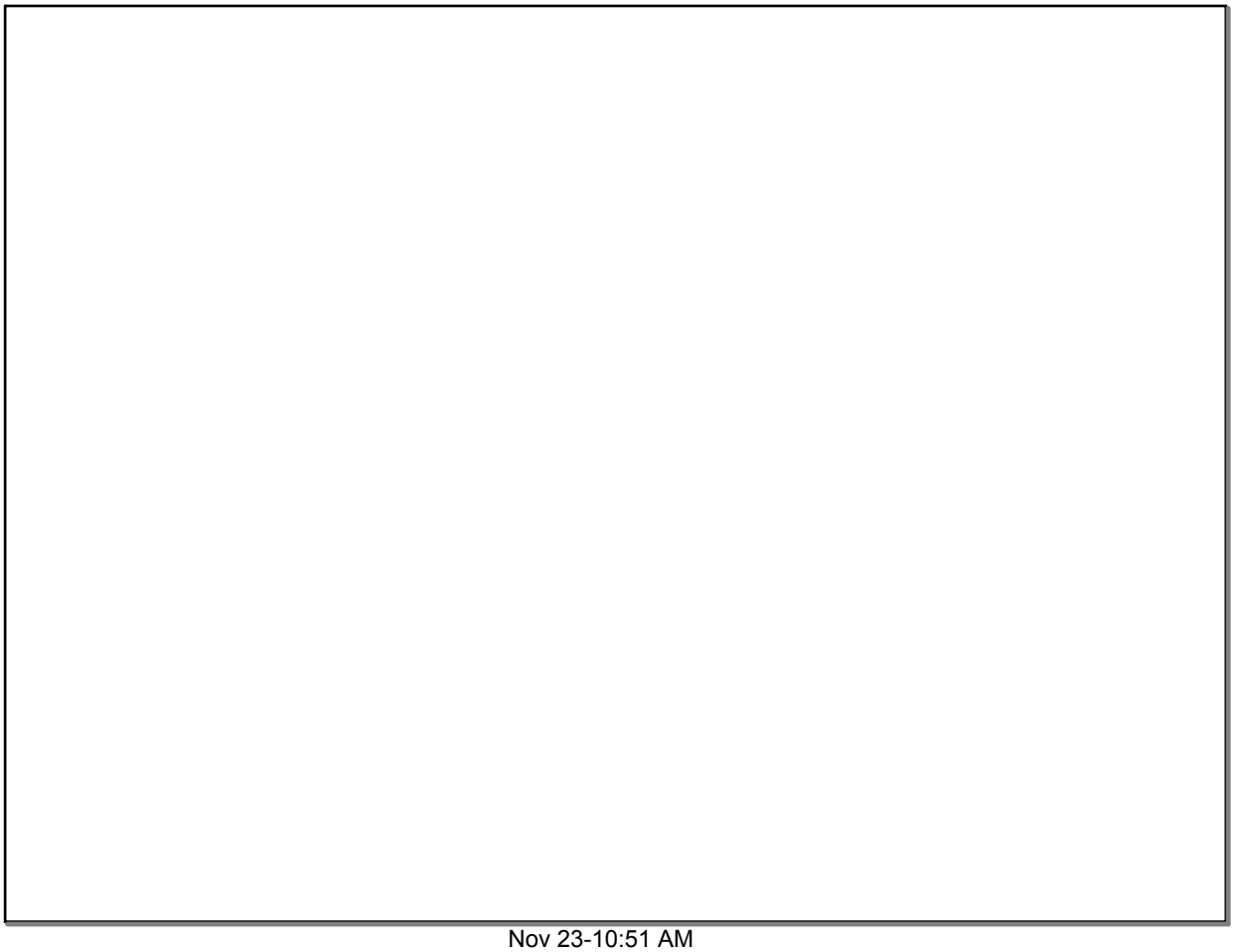
- **This is a question dealing with totals!!!!!!**
- **We will determine the total of the batch & a total ratio.**

Batch Total

# of concentrate = 3
# of water = 7

Total # = 10

Aug 26-7:44 PM



Nov 23-10:51 AM

Attachments

1.1 Build Your Skills Detailed Solutions.pdf