Foundational Numeracy

Module 7: Ratios, Rates, and Percent

Pre-Tests, Final Module Quiz, and Answer Key

Developed for Alberta's Community Adult Learning Program

COMMUNITY ADULT
LEARNING PROGRAM

Funded by Alberta Advanced Education

Alberta Advanced Education

Unit 1: Pre-Test

Name: _____

1. Write the following ratios in fraction form. Reduce the fractions to lowest terms.

   a.   15 trucks to 25 cars

   b.   3 metres to 150 centimetres

   c.   120 seconds to 3 minutes

2. A student spends 4 hours in class and 8 hours sleeping each day. What is the ratio of hours in class to hours sleeping?

3. Using the information from Question 2, what is the ratio of hours in class to the total hours in a day?

4. Write the following rates with the second term as 1 unit.

   a.   120 words in 2 minutes

   b.   440 kilometres in 8 hours

    c. $2.40 for 2 light bulbs

    d. $360 for 40 hours of work

5.   At rest, the human heart beats an average of 4200 beats in 60 minutes. What is the rate of beats per minute?

Unit 2: Pre-Test

Name: _____

1. Decide whether the following proportions are true or false.

    a. $\dfrac{3}{5} = \dfrac{9}{15}$

    b. $9{:}12 = 2{:}3$

    c. $\dfrac{3.5}{4} = \dfrac{7}{8}$

    d. $\dfrac{0.26}{0.39} = \dfrac{1.3}{1.9}$

2. Solve the following proportions for x.

    a. $\dfrac{1}{3} = \dfrac{7}{x}$

    b. $\dfrac{4}{x} = \dfrac{8}{10}$

c. $\dfrac{35}{14} = \dfrac{50}{x}$

d. $\dfrac{0.14}{1.8} = \dfrac{x}{0.63}$

3. George's father drove the family 150 kilometres in 2.5 hours. At this speed, how far would he drive in 10 hours?

4. At the rate of 3 items for $0.16, how many items can you buy for $0.80?

Unit 3: Pre-Test

Name: _____

1. Write each of the following as a percent.

   a. 0.4

   b. 0.55

   c. $\dfrac{3}{5}$

   d. $\dfrac{7}{8}$

2. In the table below, change each percent to a fraction and a decimal. Write all the fractions in lowest terms.

	Percent	Fraction	Decimal
a.	6%		
b.	15%		

3. Solve the following problems.

    a. Out of 85 people, 17 have red hair. What percent have red hair?

    b. Calculate the sale price for a DVD player regularly priced at $150, on sale at 20% off.

    c. A worker's wage recently went from $12.00 an hour to $15.00 an hour. By what percent did the worker's wage increase?

    d. A customer's bill at a restaurant was $38.00. They added a 20% tip. How much was the tip and what did the customer pay in total?

Module 7: Final Module Quiz

Name: _____

1. Write the following ratios in fraction form. Reduce the fractions to lowest terms.

   a. There are 15 men and 6 women in a welding class. What is the ratio of men to women?

   b. 18 hours to 3 days

2. Write the following as rates with the second term as 1.

   a. 16 kilometres in 4 hours

   b. 4 people to 12 cups of coffee

3. Decide whether the following proportions are true or false.

   a. $\dfrac{3}{7} = \dfrac{12}{28}$

   b. $\dfrac{2.5}{6} = \dfrac{4.2}{10}$

4. Solve the following proportions for x.

    a. $\dfrac{x}{12} = \dfrac{1}{6}$

    b. $\dfrac{1.8}{0.15} = \dfrac{0.6}{x}$

    c. $\dfrac{1\frac{5}{6}}{x} = \dfrac{\frac{3}{14}}{\frac{6}{7}}$

5. Fill in the table below. Reduce fractions to lowest terms.

	Fraction	Decimal	Percent
a.	$\dfrac{4}{5}$		
b.		0.48	
c.			75%

6. Solve the following word problems.

a. An English book had 75 pages and a math book had 25 pages. What is the ratio of the number of pages in the English book to the number of pages in the math book?

b. To encourage advance sales, concert tickets are being sold for $48.00. This is 80% of the price at the door. How much will a ticket cost at the door?

c. Four litres of paint cover 24 square metres of wall. How much paint is needed to cover 72 square metres?

d. Joanne can walk 18 kilometres in 3 hours. At the same rate, how far can she walk in 5½ hours?

e. Ali weighed 72 kilograms before he went on a program of strict exercise and careful eating. He now weighs 60 kilograms. What is the percent of his weight loss?

f. Dalia wants to buy a pair of running shoes that regularly cost $75. If they are on sale for 20% off, how much will she pay for the shoes?

Answer Key

Unit 1: Pre-Test

1. a. $\dfrac{15}{25} = \dfrac{3}{5}$ b. $\dfrac{300}{150} = \dfrac{2}{1}$ c. $\dfrac{120}{180} = \dfrac{2}{3}$

2. $\dfrac{4}{8} = \dfrac{1}{2}$ 3. $\dfrac{4}{24} = \dfrac{1}{6}$

4. a. $\dfrac{120\,\text{words}}{2\,\text{minutes}} = \dfrac{60\,\text{words}}{1\,\text{minute}}$ b. $\dfrac{440\,\text{km}}{8\,\text{hours}} = \dfrac{55\,\text{km}}{1\,\text{hour}}$ c. $\dfrac{\$2.40}{2\,\text{bulbs}} = \dfrac{\$1.20}{1\,\text{bulb}}$

    or 60 words/minute   or 55 km/h   or $1.20/light bulb

    d. $\dfrac{\$360}{40\,\text{hours}} = \dfrac{\$9.00}{1\,\text{hour}}$

    or $9.00/hour

5. $\dfrac{4\,200}{60\,\text{minutes}} = \dfrac{70}{1\,\text{minute}}$

    or 70 beats/minute

Unit 2: Pre-Test

1. a. True   b. False   c. True   d. False

2. a. $x = 21$ b. $x = 5$ c. $x = 20$ d. $x = 0.049$

3. He would drive 600 kilometres in 10 hours.

4. You can buy 15 items for $0.80.

Unit 3 Pre-Test

1. a.   40%   b.   55%   c.   60%   d.   87.5% or $87\frac{1}{2}\%$

2.

	Percent	Fraction	Decimal
a.	6%	$\dfrac{3}{50}$	0.06
b.	15%	$\dfrac{3}{20}$	0.15

3. a.   20% of the people have red hair.

    b.   The sale price would be $120.

    c.   The worker's wage increased by 25%.

    d.   The tip was $7.60 and the customer paid $45.60.

Module 4: Final Quiz

1. a. $\dfrac{15}{6} = \dfrac{5}{2}$ b. $\dfrac{18}{72} = \dfrac{1}{4}$

2. a. $\dfrac{16\,\text{km}}{4\,\text{hours}} = \dfrac{4\,\text{km}}{1\,\text{hour}}$ or 16 km/hour   b. $\dfrac{12\,\text{cups}}{4\,\text{people}} = \dfrac{3\,\text{cups}}{1\,\text{person}}$ or 3 cups/person

3. a. True   b. False

4. a. $x = 2$ b. $x = 0.05$ c. $x = \dfrac{22}{3}$ or $7\dfrac{1}{3}$

5.

	Fraction	Decimal	Percent
a.	$\dfrac{4}{5}$	0.8	80%
b.	$\dfrac{12}{25}$	0.48	48%
c.	$\dfrac{3}{4}$	0.75	75%

6. a. $\dfrac{75}{25} = \dfrac{3}{1}$

    b. A ticket will cost $60 at the door.

    c. 12 litres of paint are required.

    d. Joanne can walk 33 kilometres in 5½ hours.

    e. Ali has lost 16.7% of his weight.

    f. Dalia will pay $60 for the shoes.