

Math 8
Percents, Ratios, Rates Unit Review

Chapter 5

Name: Key

Define the following vocab words and give TWO examples:

1. Percent:

Examples:

2. Ratio:

Comparison of things with same units

Examples:

3. Rate:

Comparison of things with different units

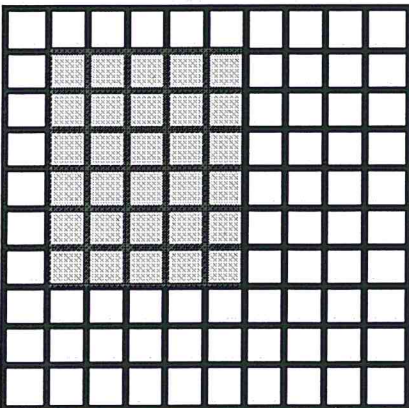
Examples:

4. Equivalent Ratio:

Examples:

Part 1: Converting grids.

Write each shaded part of the grid as a fraction, decimal, and percent



Fraction: $\frac{30}{100}$
Decimal: 0.30
Percent: 30%

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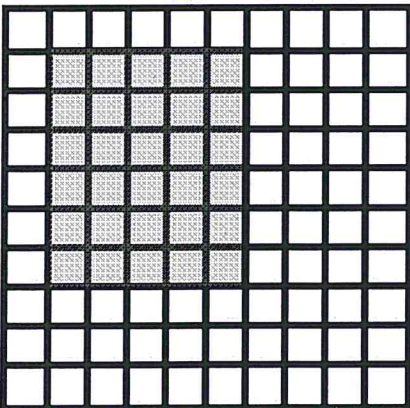
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Fraction: $\frac{30}{100}$

Decimal: 0.30

Percent: 30%

Part 2: Changing Fractions Into Percents

1. $\frac{4}{8} \stackrel{\div 4}{=} \frac{1}{2} = 50\%$
2. $\frac{12}{4} \stackrel{\div 4}{=} 3 = 300\%$
3. $\frac{14}{20} \stackrel{\times 5}{=} \frac{70}{100} = 70\%$

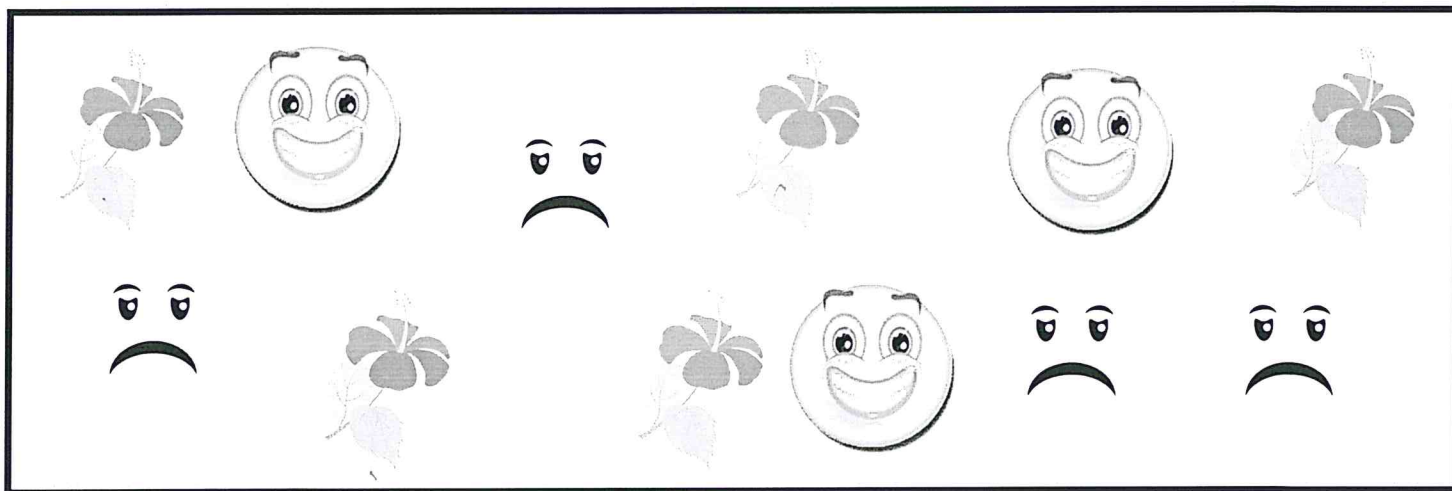
4. $\frac{2}{5} \stackrel{\times 20}{=} \frac{40}{100} = 40\%$
5. $4 \frac{5}{15} \stackrel{\div 3}{=} 4 \frac{1}{3} = 4.33 = 433\%$
6. $\frac{4}{12} \stackrel{\div 4}{=} \frac{1}{3} = .33 = 33\%$
7. $\frac{2}{3} \stackrel{\times 100}{=} 66 \frac{2}{3} = 67\%$

Part 3: Changing Fractions Into Decimals

1. $\frac{4}{5} \stackrel{\times 20}{=} \frac{80}{100} = .80$ or $5 \overline{) 4.0} = 80$
2. $\frac{17}{20} \stackrel{\times 5}{=} \frac{85}{100} = .85$ or $20 \overline{) 17.00} = 85$
3. $\frac{3}{4} \stackrel{\times 25}{=} \frac{75}{100} = .75$ or $4 \overline{) 3.00} = 75$
4. $\frac{2}{5} \stackrel{\times 20}{=} \frac{40}{100} = .40$
5. $\frac{2}{50} \stackrel{\times 2}{=} \frac{4}{100} = .04$
6. $\frac{6}{10} \stackrel{\times 10}{=} \frac{60}{100} = .60$

Part 4: Ratios

Look at the below picture and answer the following questions:



- What is the ratio of flowers to total pictures? $5:12$. What is the percent of flowers? 42%
- What is the ratio of flowers to happy faces to sad faces? $5:3$.

$$12 \overline{) 5.000} \\ \underline{-48} \\ 20 \\ \underline{-12} \\ 80 \\ \underline{-72} \\ 60$$

What is the ratio of happy faces to sad faces? 3:4

Do you write happy faces to sad faces as a fraction? Why or why not?

No, because it is not part
whole.

Calculate the equivalent ratios:

1. The ratio of cats to dogs is 5:6. If there are 20 cats, how many dogs are there? Show your work.

$$\begin{array}{l} 5:6 = 20:24 \\ \times 4 \quad \times 4 \end{array}$$

2. If the ratio of boys to girls at a party is 1:3, and there are 27 girls there, how many boys are present? Show your work.

$$\begin{array}{l} 1:3 = 9:27 \\ \times 9 \quad \times 9 \end{array}$$

3. If the ratio of Kool-aid pouches to water is one pouch for every 3 L of water, how many Kool-aid pouches are necessary to make 18 L of Kool-aid? Show your work.

$$\begin{array}{l} 1 \text{ pouch} : 3 \text{ L} = 6 : 18 \text{ L} \\ \times 6 \quad \times 6 \end{array}$$

Part 5: Calculating Discounts and Sales Tax

1. Krista is buying her mom a new pair of leather gloves for Christmas. If they are 35% off, how much of the original price is Krista paying?

$$100\% - 35\% = 65\%$$

2. Josie decided to buy her mom a new toque for Christmas. She found a lovely green one for \$35.00. She decided to buy the matching gloves as well for \$10.00. What is the final price of her purchase with HST?

$$\begin{array}{r} 35.00 \\ + 10.00 \\ \hline 45.00 \end{array}$$

$$\begin{array}{r} \$45 \\ \times 12 \\ \hline 90 \\ 450 \\ \hline 5.40 \end{array}$$

$$\begin{array}{r} 45.00 \\ + 5.40 \\ \hline \$50.40 \end{array}$$

3. Thomas decided to buy all his brothers and sisters new gloves for Christmas. He found some really nice ones for \$10.00 each. Thomas has eight brothers and sisters to buy for. What is the total cost for all 8 gloves with taxes?

$$\begin{array}{r} \$10.00 \\ \times 8 \\ \hline 80.00 \end{array}$$

$$\begin{array}{r} 80 \\ \times .12 \\ \hline 160 \\ 800 \\ \hline 9.60 \end{array}$$

$$\begin{array}{r} 80.00 \\ + 9.60 \\ \hline \text{\$ } 89.60 \end{array}$$

Part 6: Rates

Express each statement as a rate:

- Hannah walks 4km in 1 hr $\underline{4\text{km/hr}}$
- Clayton skates 15 metres in 10 seconds $\underline{15\text{m}/10\text{sec}} = 1.5\text{m/sec}$
- The tap drips 30 drops in 1 minute $\underline{30\text{drops}/1\text{min}}$
- The skateboard travels at 4 km in 10 minutes $\underline{4\text{km}/10\text{min}} = .4\text{km/min}$

Solve each word problem below. Make sure to show your work:

- Sydney charges \$20 for 3 hours of babysitting.
 - What is Sydney's hourly rate?

$$\begin{array}{r} \$20 \div 3 = \text{\$ } 6.67 \\ 3\text{h} \div 3 \quad 1\text{hr} \end{array}$$

- How much does Sydney charge for 5 hours of babysitting?

$$\begin{array}{r} \$6.67 \times 5 = \text{\$ } 33.33 \\ 1\text{hr} \times 5 \quad 5\text{hr} \end{array}$$

- Cam is able to read 10 pages of a book in 2 minutes.
 - What is Cam's rate of reading?

$$10\text{pages}/2\text{min} = 5\text{pages}/1\text{min}$$

- How many pages can Cam read in one hour?

$$5\text{pages}/1\text{min} \times \frac{60\text{min}}{1\text{hr}} = 300\text{pages/hr.}$$

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$$\begin{array}{l} 5:6 \\ \times 4 \quad \times 4 \end{array} = 20 : \textcircled{24}$$

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$$\begin{array}{l} 1:3 \\ \times 9 \quad \times 9 \end{array} = \textcircled{9} : 27$$

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b. How much does Sydney charge for 5 hours of babysitting?

$$\begin{array}{r} \$6.67 \times 5 = \$33.33 \\ 1\text{hr} \times 5 \quad 5\text{hr} \end{array}$$

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