

RATIOS

NAME: _____

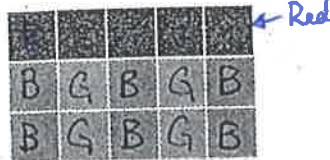
DIV: _____

DATE: _____

Do Q# 1ace, 3ace, 4ace, 7ace, 11-13

Practice

1. Use the diagram to write each ratio in 3 ways.



- a) red squares to blue squares
- b) red squares to green squares
- c) green squares to blue squares
- d) red squares to all squares
- e) all squares to blue squares
- f) blue squares to all squares
- g) green squares to red squares

2. Draw four 5-by-5 squares on grid paper. Use a different diagram to illustrate each ratio.

- a) 17:8 b) 3:2 c) 4:21 d) 16:9

3. Write each ratio in 3 ways.

- a) 3 cups of sugar to 5 cups of fruit
- b) 3 cans of water to 1 can of concentrate
- c) 50 L of gasoline to 1 L of oil
- d) 25 drops of paint to 4 drops of solvent
- e) \$2 saved to \$3 spent

4. Write each ratio in simplest form.

- | | | |
|-------------------|----------|--------------------|
| a) $\frac{6}{15}$ | b) 4:12 | c) $\frac{8}{16}$ |
| d) 3 to 18 | e) 6:10 | f) 14:7 |
| g) 12 to 2 | h) 8:18 | i) $\frac{24}{10}$ |
| j) 18:4 | k) 10:25 | l) 56:28 |

5. Write as a ratio in simplest form. (Unit)

- | | |
|----------------------|--------------------|
| a) 1 min to 45 s | b) 2 kg to 250 g |
| c) 73 days to 1 year | d) 1.5 L to 750 mL |
| e) 35¢ to \$1.05 | f) 1 m to 175 cm |

Problems and Applications

6. One year, 78% of Canadian households owned cars and 24% owned air conditioners. Write the ratio of households with cars to households with air conditioners as a ratio in lowest terms.

7. For the name of each country, express the ratio of the number of consonants to the number of vowels in lowest terms.

- | | |
|----------------|---------------|
| a) Canada | b) Australia |
| c) France | d) Germany |
| e) Iceland | f) Bolivia |
| g) Afghanistan | h) Mozambique |
| i) Cuba | j) Madagascar |

8. A food guide reported that half a cup of orange juice contained 49 mg of Vitamin C and half a cup of grapefruit juice contained 42 mg of Vitamin C. Write the ratio of the mass of Vitamin C in orange juice to the mass of Vitamin C in grapefruit juice. Express your answer in simplest form.

9. Naji took 15 pictures on a 36-exposure roll of film. Express each ratio in lowest terms.

- a) the number of pictures he took to the number of exposures remaining
- b) the total number of exposures on the roll to the number of pictures he took
- c) the number of exposures remaining to the total number of exposures on the roll

10. The power used by a light bulb is indicated by the power rating in watts (W). Express the following power ratings as ratios in lowest terms.

- | | |
|------------------|-------------------|
| a) 100 W to 60 W | b) 40 W to 60 W |
| c) 40 W to 150 W | d) 150 W to 100 W |

11. During a volleyball game, one team scored its points as follows.

- 4 points from serves
- 3 points from spikes
- 6 points from rallies

Write a ratio in simplest form to compare

- a) points from serves to points from spikes
- b) points from spikes to points from rallies
- c) points from rallies to points from serves

12. The same ballpoint pen cost 90¢ in one store and \$1.20 in another store. Write the ratio of the lower cost to the higher cost in lowest terms.

13. One term of a two-term ratio is a prime number. What can you state about the other term if it is possible to write the ratio in simpler form?

14. a) Without looking at a newspaper, estimate as a group the ratio of advertising space to non-advertising space in a local newspaper.

b) Get a copy of the local paper and determine the ratio of advertising space to non-advertising space. You need to estimate and add fractions of pages to get this ratio.

c) Compare your solution and your strategy with those of other groups.

d) Is the ratio different for a national newspaper?

e) Is the ratio different for a magazine?

15. Estimate, then determine the ratio of "DJ talk minutes" to "music minutes" on your favourite radio station.

16. Estimate, then determine the ratio of "advertising minutes" to "non-advertising minutes" for a 1-h TV show of your choice.

17. a) Estimate the ratio of the height to the width of a TV screen. Is the ratio constant for all TV screens? Compare your findings with a classmate's.

b) Repeat part a) for a door instead of a TV screen.

18. Research these ratios for your school. Write them in lowest terms.

a) grade 8 girls to grade 8 boys

b) grade 8 students to all students

c) all students to all teachers

19. The Buffon needle experiment was performed by Count Buffon in the eighteenth century. To repeat the experiment, draw parallel lines on a piece of paper so that the distance between adjacent lines equals the length of a toothpick.

a) Drop 10 toothpicks onto the paper and count the toothpicks that touch the lines. Repeat this step 9 more times. If your results agree with Count Buffon's, you will find that

$$\frac{2 \times \text{number dropped}}{\text{number touching lines}} \doteq \pi$$

How close is your result to the value of π ?

b) Combine your data with your classmates'. Compare the result with the value of π . Is the result from the combined data closer to π than the result you obtained in part a)?

LOGIC POWER

In the 1880s, some companies put their advertising on puzzle cards to get people's attention. The following farmer's puzzle was very popular. Copy the diagram into your notebook. Draw 3 paths, one from the house to gate A, another from the barn to gate C, and the third from the well to gate B. Make sure that none of the paths cross and that all the paths stay inside the fence.

