

Lesson 3 Math 8 ELearning

Review First

Find the missing variable:

a) $6 : x = 24 : 44$

$x = 11$

b) $63 : 35 = 9 : n$

$n = 5$

c) $18 : 6 = 27 : y$ may need to
 reduce before
 you start

$y = 9$

Ex) Make the first term 1

a) $12:36$ b) $9:72$

$\div 12$ $\div 9$

$1:3$ $1:8$

Ex) Make the second term 1

a) $16:8$ b) $42:7$

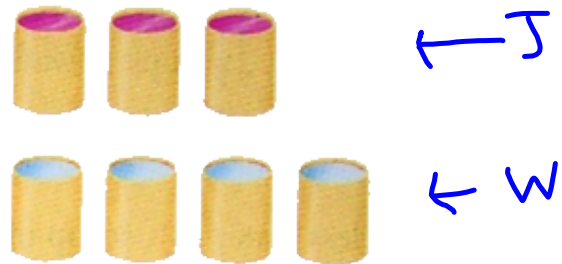
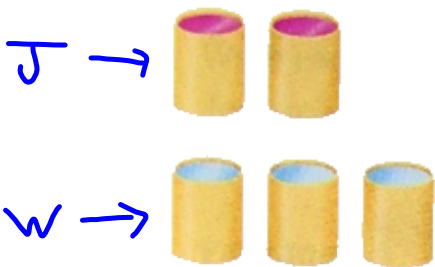
$\div 8$ $\div 7$

$2:1$ $6:1$

Comparing Rates

Recipe A for punch calls for 2 cans of concentrate and 3 cans of water.

Recipe B for punch calls for 3 cans of concentrate and 4 cans of water.



In which recipe is the punch stronger?
 Or, are the drinks the same strength?
 Explain how you know.

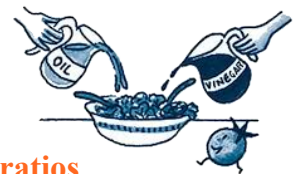
Recipe A
 Punch : Water
 $2 : 3$
 $\times 4 \downarrow \quad \uparrow \times 4$
 $8 : 12$

Recipe B
 Punch : Water
 $3 : 4$
 $\times 3 \downarrow \quad \uparrow \times 3$
 $9 : 12$
 ↓
 more Juice
 Strong

You can compare ratios either by:

- getting equivalent ratios with **one of the terms the same in both ratios**

- changing each ratio so that the **second term is 1**



Erica makes her coffee with 2 scoops of coffee and 5 cups of water.

Jim makes his coffee with 3 scoops of coffee and 7 cups of water.

Whose coffee is stronger?



No coffee, No workee.



Erica

Coffee: Water

$$2 : 5 \quad \downarrow \times 7$$

$$14 : 35$$

Jim Coffee: Water

$$3 : 7 \quad \downarrow \times 5$$

$$15 : 35$$

more coffee in the same amount of water so stronger

Or



Coffee : Water

$$2 : 5 \quad \times 3$$

$$6 : 15$$

more water makes coffee weaker

Coffee : Water

$$3 : 7 \quad \times 2$$

$$6 : 14$$

less water makes coffee stronger

1) In two separate pickle recipes the ratio of Sugar to Vinegar is different? Explain how you know which is sweeter? MUST show math

Recipe A calls for 6 cups of sugar for every 4 cups of vinegar

Recipe B calls for 4 cups of sugar for every 3 cups of vinegar

Recipe A

Sugar: Vinegar

$$\begin{array}{ccc} 6 & : & 4 \\ \downarrow \times 3 & & \downarrow \times 3 \\ 18 & : & 12 \end{array}$$

↓
more sugar is sweeter

Recipe B

Sugar: Vinegar

$$\begin{array}{ccc} 4 & : & 3 \\ \downarrow \times 4 & & \downarrow \times 4 \\ 16 & : & 12 \end{array}$$

You can compare ratios either by:

- getting equivalent ratios with one of the terms the same in both ratios
- changing each ratio so that the second term is 1

Class/Homework

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4(a,d,f),

#5(a,d,f),

#6,

#7,

#10,

#12

Practice

Check

4. Write each ratio with first term 1.
 a) 3:12 b) 5:40 c) 8:56
 d) 9:81 e) 33:99 f) 22:132

5. Write each ratio with second term 1.
 a) 16:4 b) 55:11 c) 144:12
 d) 120:24 e) 91:13 f) 96:8

6. The principal is deciding which shade of blue to have the classrooms painted. One shade of blue requires 3 cans of white paint mixed with 4 cans of blue paint. Another shade of blue requires 5 cans of white paint mixed with 7 cans of blue paint.

- a) Which mixture will give the darker shade of blue? Explain.
 b) Which mixture will require more white paint?

7. In a hockey skills competition, Olga scored on 3 of 5 breakaways. Tara scored on 5 of 7 breakaways. Whose performance was better?

- a) To find out, write each ratio as a fraction.
 b) How can you use common denominators to help you solve the problem? Explain.

Apply

8. A chicken farmer in Manitoba compares the numbers of brown eggs and white eggs laid in 2 henhouses.

The chickens in Henhouse A lay 6 brown eggs for every 10 white eggs. The chickens in Henhouse B lay 3 brown eggs for every 9 white eggs. Which henhouse produces more white eggs? What assumptions do you make?

9. The concentrate and water in each picture are mixed.



Which mixture is stronger: A or B? Draw a picture to show your answer.

10. In a basketball game, Alison made 6 of 13 free shots. Nadhu made 5 of 9 free shots. Who played better? Explain. Use two different methods to compare the ratios.

11. Two different groups at a summer camp have pizza parties. The Calgary Cougars order 2 pizzas for every 3 campers. The Alberta Antelopes order 3 pizzas for every 5 campers.

- a) Which group gets more pizza per person? How do you know?
 b) Could you use percent to find out? Why or why not?

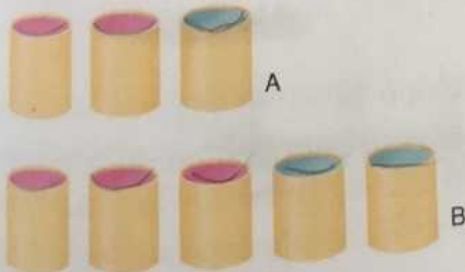
12. Rick is comparing two recipes for oil and vinegar salad dressing. Recipe A calls for 150 mL of vinegar and 250 mL of oil. Recipe B calls for 225 mL of vinegar and 400 mL of oil. Which salad dressing will have a stronger vinegar taste? How did you find out?

13. Assessment Focus The ratio of fiction to non-fiction books in Ms. Arbuckle's class library is 7:5. The ratio of fiction to non-fiction books in Mr. Albright's class library is 4:3. Each classroom has 30 non-fiction books.

- a) Which room has more fiction books? How many more?
- b) What percent of the books in each class is non-fiction?



14. Look at the sets of cans of concentrate and water.



- a) What is the ratio of concentrate to water in A and in B?
- b) Explain how you could add concentrate or water to make both ratios the same. Draw a picture to show your answer.

15. Drew has 3 shades of paint.

Shade	Red (drops)	Yellow (drops)
A	4	12
B	3	15
C	2	3

- a) Write the ratio of red to yellow paint in each shade. Draw a picture to represent each ratio.
- b) For each ratio in part a, write an equivalent ratio that uses 1 drop of red paint.
- c) Which shade will have the most red? How do you know?
- d) Which shade will have the most yellow? How do you know?

16. Two cages contain white mice and brown mice. The ratio of white mice to brown mice in Cage A is 5:6. The ratio of white mice to brown mice in Cage B is 7:5. Which cage contains more brown mice?

Marcel says, "Since $\frac{6}{11}$ is greater than $\frac{1}{2}$, and $\frac{5}{12}$ is less than $\frac{1}{2}$, Cage A contains more brown mice." Is Marcel's reasoning correct? Explain.



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1. student's preference

3. $\frac{7}{11}$ change to a decimal

0.6363, then write the equivalent percent

4. a) $3:12$
 $1:4$

b) $5:40$
 $1:8$

c) $8:56$
 $1:7$

d) $9:81$
 $1:9$

e) $33:99$
 $1:3$

f) $22:132$
 $1:6$

5. a) $16:4$
 $4:1$

b) $55:11$
 $5:1$

c) $144:12$
 $12:1$

d) $120:24$
 $5:1$

e) $91:13$
 $7:1$

f) $96:8$
 $12:1$

6. A.

blue: white

$$\begin{array}{r} 4 : 3 \\ 28 : 21 \end{array}$$

more white so lighter

B

blue: white

$$\begin{array}{r} 7 : 5 \\ 28 : 20 \end{array}$$

Shade B is darker.

b) A has more white compared to the blue.

7. Olga scored 3 of 5
21 of 35

Tara 5 of 7
25 of 35

Tara's performance was better

a) Olga

$$\frac{3}{5} = \frac{21}{35}$$

Tara

$$\frac{5}{7} = \frac{25}{35}$$

8. Henhouse A
brown: white
6 : 10

60% brown eggs

so Henhouse B produces more white eggs.

Henhouse B
brown: white
3 : 9

$\frac{1}{3}$ or 33% brown eggs

6:18

9. A → 3 cans concentrate, 1 can water
B 1 can concentrate, 3 cans water
A is stronger

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10. Alison
 6 of 13 shots
 $\times 9$ $\times 9$

54 of 117

$$\frac{6}{13} = 0.46$$

or
 46% of
 shots

Nadhu
 5 of 9 shots
 $\times 13$ $\times 13$

65 of 117

$$\frac{5}{9} = 0.555\ldots$$

or 56% of
 shots

Nadhu played better.

11. Calgary
 2 pizza for 3 people
 $\div 3$ $\div 3$

$\frac{2}{3}$ pizza / person

0.666...

Alber ta
 3 pizzas for 5 people
 $\div 5$ $\div 5$

$\frac{3}{5}$ / person

$\frac{6}{10}$ or 0.6

The Calgary team
 received more pizza per person

(b) Yes, you could find what
 percent of a pizza each person
 received.

<p>12</p> <p>Recipe A</p> <p>vinegar : oil</p> <p>150 : 250</p> <p>450 : 750</p>	<p>OR</p> <p>A B</p> <p>v:0 v:0</p> <p>3:5 9:16</p> <p>41:80 45:60</p>	<p>Recipe B</p> <p>vinegar : oil</p> <p>225 : 400</p> <p>450 : 800</p>
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less oil than B
so stronger
vinegar

Recipe A has a stronger vinegar taste, they both have 450ml of vinegar, but A has less oil.

13. Ms Arbuckle

Fiction : non Fiction

7 : 5

42 : 30

Fiction

Mr. Albright

Fiction | Non Fict.

4 : 3

40 : 30

Fiction

b) Ms Arbuckle

$\frac{30}{72} = 0.42$ or 42%

Mr. Albright

$\frac{30}{70} = 0.43$ or 43%

14. A conc : water

2 : 1

B conc : water

3 : 2

b) A 6 : 3

6 : 4

then add one can of water to A to make the conc : water the same.