

Date: _____

Chapter 14, Lesson B: Find Equivalent Fractions

Compare and Order Fractions (14.B.1)

- A fraction is a part of a whole.

It consists of a **numerator** and a **denominator**.

$$\frac{3}{5}$$

← numerator
← denominator

A) Equivalent Fractions:

- Equivalent fractions represent the same part of the whole. They have different numerators and denominators but they are **equal** in value.

$$\frac{2}{4} = \frac{4}{8} = \frac{9}{18} = \frac{6}{12} = \frac{7}{14}$$

- We can find equivalent fractions by **multiplying/dividing** the numerator and the denominator of a fraction by the same number.

$$\frac{1 \times 3}{3 \times 3} = \frac{3}{9}$$

$$\frac{2 \times 2}{5 \times 2} = \frac{4}{10}$$

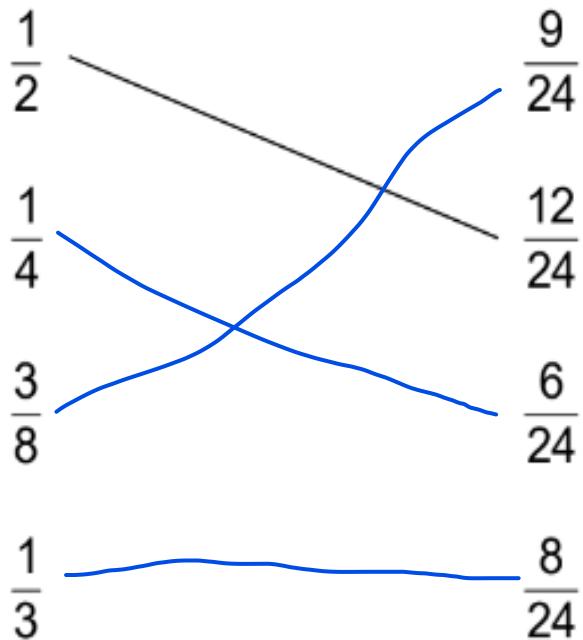
$$\frac{7 \times 4}{11 \times 4} = \frac{28}{44}$$

$$\frac{10 \div 10}{30 \div 10} = \frac{1}{3}$$

$$\frac{9 \div 3}{24 \div 3} = \frac{3}{8}$$

$$\frac{2 \div 2}{8 \div 2} = \frac{1}{4}$$

Q1. Draw lines to match the equivalent fractions.
One has been done for you.



Q2. Write the correct number in the box.

$$\frac{1}{5} \times 4 = \frac{4}{20}$$

$$\frac{2}{9} \times 2 = \frac{4}{18}$$

$$\frac{6}{30} \div 6 = \frac{1}{5}$$

B) Fractions with the Same Denominators

- When comparing fractions with the **same denominators**, it is easy to determine the greater or the smaller fraction as we can simply look for the fraction with the greater numerator.
- **The greater fraction** is the one with the **greater numerator**.

$$\frac{5}{9} > \frac{2}{9}$$

5 is greater than 2
same denominators

Q3. Compare the fractions using $<$, $>$, $=$.

$$\frac{4}{6} \text{ } \bigcirc \text{ } \frac{2}{6}$$

$$\frac{3}{5} \text{ } \bigcirc \text{ } \frac{4}{5}$$

$$\frac{7}{10} \text{ } \bigcirc \text{ } \frac{9}{10}$$

C) Fractions with the Same Numerator

When the numerators are the same, the greater fraction is the one with the **smaller denominator**.



$$\frac{1}{3}$$



$$\frac{1}{6}$$

same numerators
different denominators

When comparing fractions with **different denominators**, we need to find the **least common multiple** of the denominators.

We multiply the **numerator** and **denominator** of the fraction by the **same number** to make sure that the new fraction has the same value of the original one.

- The **denominators** are the same now, we can compare fractions easily.

Example: 30 is the least common multiple of 5 and 6.

$$\frac{4}{5} \times \frac{6}{6} \quad \frac{3}{6} \times \frac{5}{5}$$

$$\frac{24}{30} > \frac{15}{30}$$

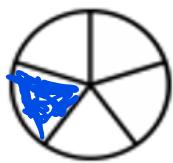
Q4. Compare the fractions using ($<$, $>$, $=$).

$$\frac{3 \times 5}{3 \times 7} \text{ } \boxed{>} \text{ } \frac{2 \times 7}{3 \times 7} \quad \frac{15}{21} \quad \frac{14}{21}$$

$$\frac{8 \times 3}{8 \times 6} \text{ } \boxed{<} \text{ } \frac{5 \times 6}{8 \times 6} \quad \frac{24}{48} \quad \frac{30}{48}$$

$$\frac{9 \times 1}{9 \times 2} \text{ } \boxed{<} \text{ } \frac{7 \times 2}{9 \times 2} \quad \frac{9}{18} \quad \frac{14}{18}$$

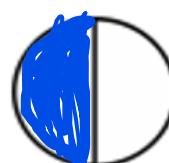
Q5. Shade each shape and compare the fractions using $<$, $>$ or $=$.



$$\frac{1}{5}$$



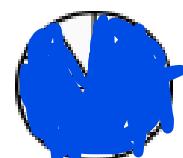
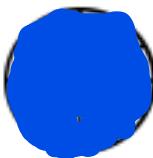
$$\frac{1}{12}$$



$$\frac{1 \times 3}{2 \times 3} \text{ } \boxed{<} \text{ } \frac{2 \times 2}{3 \times 2}$$



$$\frac{2}{6}$$



$$\frac{9}{12} \text{ } \boxed{<} \text{ } \frac{12}{12} = 1$$

$$1 = \frac{10}{10} \text{ } \boxed{>} \text{ } \frac{10}{11}$$

Q6. Use the mathematical symbols $<$, $>$, $=$ to compare the fractions.

$$1 = \frac{3}{3} \boxed{>} \text{ } \frac{3}{6}$$

$$\frac{1}{11} \boxed{<} \text{ } \frac{6}{11}$$

$$1 = \frac{7}{7} \boxed{=} \text{ } \frac{8}{8} = 1$$

$$\frac{11}{22} \text{ } < \text{ } \frac{16}{22}$$

$$\frac{5}{6} \boxed{<} \text{ } \frac{8}{8} = 1$$

$$\frac{11 \times 1}{11 \times 2} \boxed{<} \text{ } \frac{8 \times 2}{11 \times 2}$$

Q7. Put these fractions in order starting with the smallest.

$$\frac{1}{4}, \frac{1}{5}, \frac{1}{10}, \frac{1}{2}$$
$$\frac{1}{10}, \frac{1}{5}, \frac{1}{4}, \frac{1}{2}$$

smallest

Explain why you arranged the fraction in this order.

The fraction with the smallest denominator is the greatest fraction.

Q8. Order the fractions below from greatest to smallest.

a)

$$\frac{1}{4}, \frac{2}{4}, \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$$
$$\frac{3}{4}, \frac{2}{4}, \frac{1}{4}$$

greatest

Make the denominators the same number, then order.

b)

$$\frac{5}{6}, \frac{2 \times 2}{3 \times 2} = \frac{4}{6}, \frac{1 \times 2}{3 \times 2} = \frac{3}{6}, \frac{1}{6}$$
$$\frac{5}{6}, \frac{4}{6}, \frac{3}{6}, \frac{1}{6}$$

greatest

Q9. Draw a ring around the fractions that are equivalent to $\frac{3}{5}$.

$$\frac{6}{10}$$

$$\frac{14}{20}$$

$$\frac{15}{25}$$

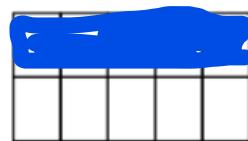
$$\frac{20}{30}$$

$$\frac{21}{35}$$

Q10. Shade the figures and write the numerator to show the equivalent fractions.



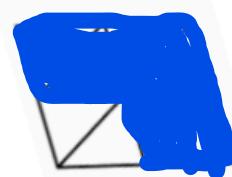
$$\frac{1}{2}$$



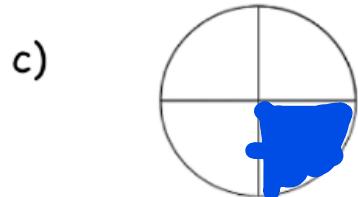
$$\frac{5}{10}$$



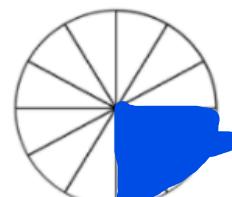
$$\frac{3}{4}$$



$$\frac{6}{8}$$



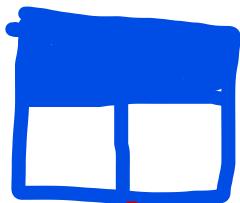
$$\frac{1}{4}$$



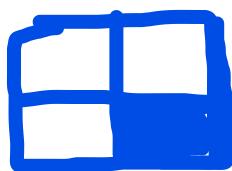
$$\frac{3}{12}$$

Q11. "If two fractions have the same denominator, the greater the numerator, the greater the fraction."

Draw diagrams to show that this statement is true.



$$\frac{2}{4}$$



$$\frac{3}{4}$$

>

Q12. Cami and Astrid have some beads.

$\frac{3}{4}$ of the beads that each one has are red, while the rest are blue.

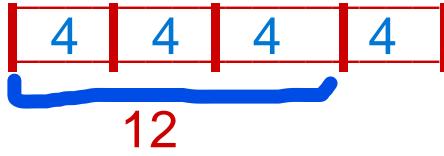
4

Cami has 12 red beads while Astrid has 15 red beads.

How many beads does each of them have?

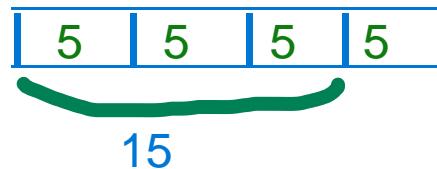
$$12 \div 3 = 4$$

Cami: $\frac{3}{4}$ of ? = 12



$$4 \times 4 = 16 \text{ beads}$$

Astrid: $\frac{3}{4}$ of ? = 15



$$15 \div 3 = 5$$

$$4 \times 5 = 20 \text{ beads}$$

Cami: 16

Astrid: 20

Q13. Gavin folded a piece of paper into two equal parts.

He shaded $\frac{1}{2}$ of the paper as shown below.



new denominator

He then folded the same piece of paper into 16 equal parts.

How many parts are shaded now?

$$\frac{1 \times 8}{2 \times 8} = \frac{?}{16}$$

$$\frac{1}{2} = \frac{8}{16}$$

8 parts

Q14. Fill in the blanks with $<$ or $>$.

$$\frac{1}{10}$$

$<$

$$\frac{3}{10}$$

$$\frac{2}{5}$$

$<$

$$\frac{4}{5}$$

$$\frac{1}{4}$$

$>$

$$\frac{1}{10}$$

$$\frac{1}{5}$$

$<$

$$\frac{1}{3}$$

Q15. There are some toys.

$\frac{5}{10}$ of them belong to Carl.

$\frac{2}{10}$ of them belong to Eason.

$\frac{3}{10}$ of them belong to Shirley.

- Fill in the blanks using the information above.

Shirley has more toys than Eason, but fewer toys than Carl.