Math 3 Classwork 25

Warm Up

Multiplication and Division Quiz. Do as many problems as you can in **5 minutes.**

Independent work

1 Compare, using <, >, and =

a) 12,000 ÷ 60 … 1,200 ÷ 6

b) 130 × 50 … 1,300 × 5

c) 30,000 ÷ 5 … 3,000 ÷ 50

d) 210 × 300 …2,100 × 30

e) 1,500 ÷ 50 … 15,000 ÷ 50

f) 550 × 40 … 5,500 × 40

2

505 × 2 =	300 × 5 =	302 × 5 =
40 ×15 =	5 × 40 =	55 × 5 =
202 ÷ 2 =	480 ÷ 6 =	500 ÷ 25 =
440 ÷ 40 =	450 ÷ 50 =	480 ÷ 80 =

Homework Review

3 Compare, using <, > or =. Think carefully about an order of operations:

8 × 64 – 40 …. 8 × (64 – 40)

100 ÷ 5 + 5 … 100 ÷ (5 + 5)

20 + 50 × 8 … (20 + 50) × 8

12 × 43 + 51 × 5 … 5 × 51 + 43 × 12

4 Write the answer for each question:

a) There are a total of 40 kg of apples packed in 8 identical bags (equal amount in each)

- How many kgs are in each bag? ______________________________
- How many kgs of apples are in x such bags? _______________________________

b) There are a kgs of apples packed by in b bags

- How many kgs are in each bag? _____________________________
- How many bags would you need to pack q kgs of apples? ____________________

c) A train traveled 200 km at an even speed for 5 hours.

- How many km the train covered in one hour? _____________________________
- How many hours would be needed to cover 1000 km? ________________________

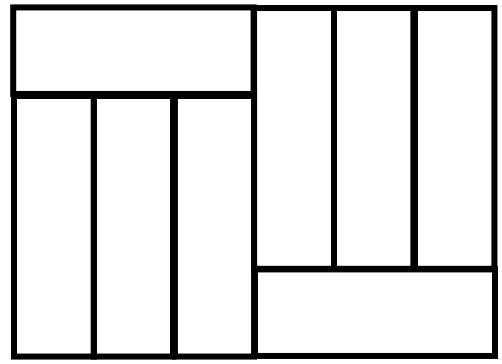
REVIEW I

5

This rectangle is made by identical small rectangles, that measure 9 cm long and 3 cm wide.

Find the area of the larger rectangle A = ____________

Find the perimeter of the larger rectangle P = __________



6

Reduce the following fractions to the lowest term:

a) $\frac{24}{60}$ =   b) $\frac{28}{70}$ =   c) $\frac{250}{500}$ =

New Material I

Mixed fractions

Finding $\frac{1}{4}$ of the number is equivalent to dividing this number by 4.

For example, $\frac{1}{4}$ of 16 is equivalent to 16 ÷ 4.

If a number cannot be divided exactly, it leaves a remainder.

For example, 43 ÷ 4 = 10 remainder 3

The remainder can be expressed as a fraction.

43 ÷ 4 = $\frac{1}{4}$ of 43 or = 10 $\frac{3}{4}$

10 $\frac{3}{4}$ is a mixed number.

7

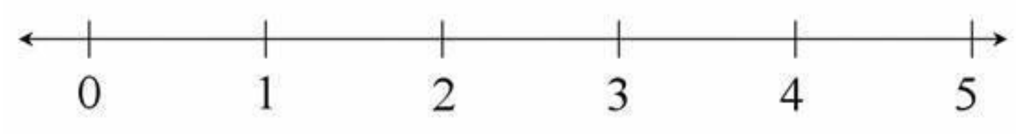
Find:

1/3 of 18 =	1/3 of 31 =
1/4 of 20 =	1/8 of 24 =
1/5 of 35 =	1/12 of 24 =

8

Find my position.

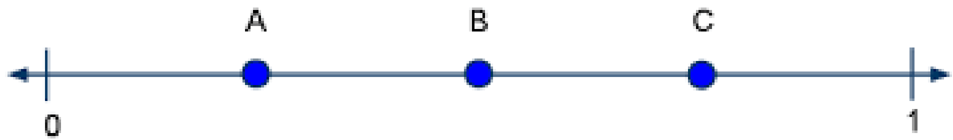
Mark and label by a letter points on the number line for 1/ 2, 2/2, 3/2, 4/2, 5/2, and 6/2.



9

Write down the fractions corresponding to letters on the number lines a) and b).

a)

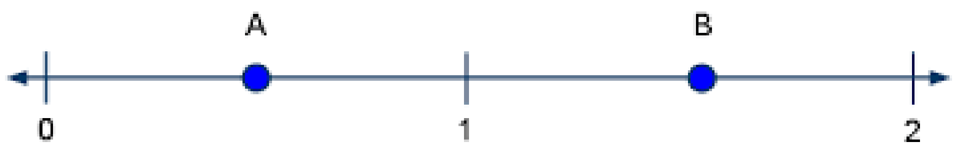


A =

B =

C =

b)



A =

B =

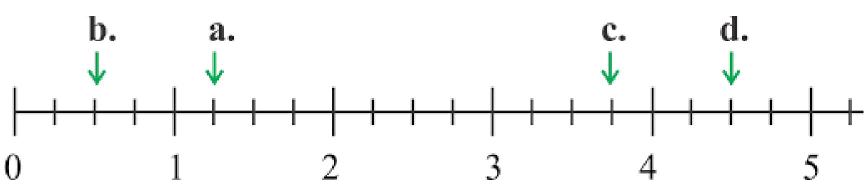
10

Here is a part of the number line (actually of the number ray).

Write down the fractions corresponding to:

a) Letter a _______ b) letter b _______

c) letter c _______ d) letter d _______

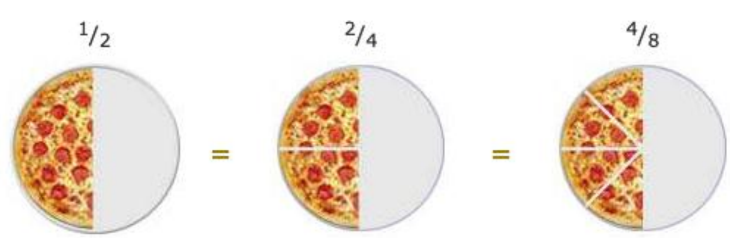


New Material II

Comparing Fractions. Equivalent Fractions.

Two fractions **are equivalent (equal)** if they are the same size, or the same point on a number line.

These pieces of pizza are the same size:

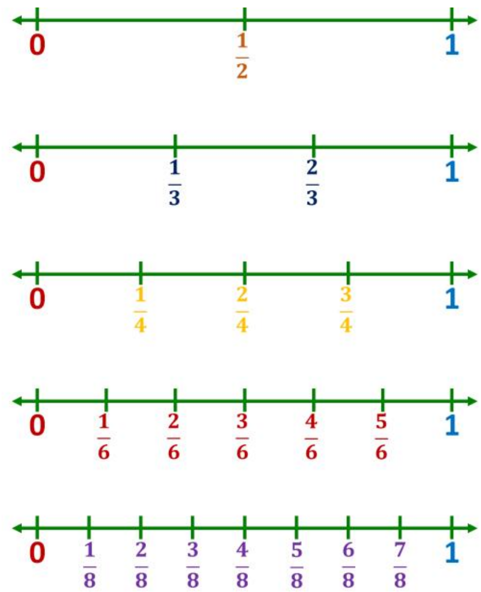


11 Using the number lines on the picture, compare 1/2, 2/4, 3/6 and 4/8.

Name two more fraction which are equivalent to them.

____

____



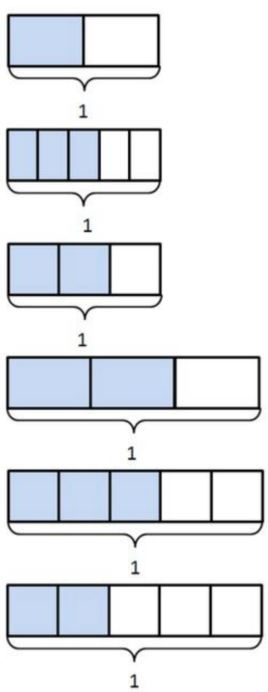
Comparing Fractions

I. Fractions having the same numerator. The denominator tells us how many equal pieces are in the whole, determining the size of each piece, and the numerator tells us how many of those pieces we have.

For example, to compare $\frac{2}{3}$ and $\frac{2}{5}$, there are more fifths in the whole than thirds, so fifths are smaller.

This means that $\frac{2}{5} < \frac{2}{3}$.

12 Choose the two pairs of diagrams, that best compare 2/3 and 2/5.



13

Arrange fractions in order, from smallest to greatest (use a number line to make the arrangement easier):

$\frac{1}{2}, \frac{1}{5}, \frac{1}{10}, \frac{1}{15}$ → ______________ $\frac{3}{11}, \frac{3}{7}, \frac{3}{5}, \frac{3}{4}$ → ______________

II. Fractions having the same denominators. The denominator tells us there are the same number of pieces in the whole, and the numerator tells us how many of those pieces we take. If one fraction has more of those pieces than the other, that fraction represents a bigger number.

For example, to compare $\frac{2}{3}$ and $\frac{1}{3}$,

The denominator tells us there are the same number of pieces in the whole, however one fraction has more of those pieces than the other.

This means that $\frac{1}{3} < \frac{2}{3}$.

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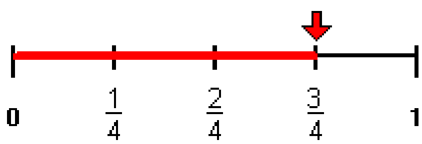
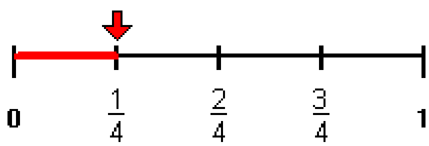
a) Mathew rode his bike for three-fourths of a mile and Elbert rode his bike for one-fourth of a mile. Which boy rode his bike farther?

Mathew:



Elbert:



<u>Compare 1/4 and 3/4:</u>

III. Fractions having unlike denominators AND unlike numerators. It would be easier to compare them if they had like denominators. We need to convert these fractions to equivalent fractions with a common denominator in order to compare them. *For example,* to compare $\frac{3}{4}$ and $\frac{2}{3}$,

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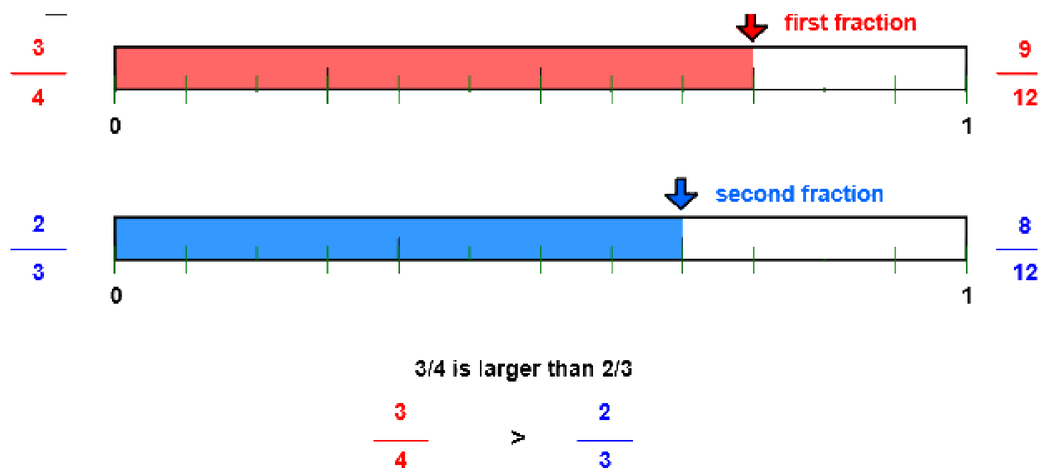
Aurora ate three-fourths of a pie and Abigail ate two-thirds of a pie. If both pies were the same size, then which girl ate more pie?

These fractions have unlike denominators (and unlike numerators). It would be easier to compare them if they had like denominators. We need to convert these fractions to equivalent fractions with a common denominator in order to compare them more easily.



Here, we will introduce the idea of the least common denominator or LCD. LCD is an idea that will be used in comparing, adding, and subtracting fractions. The LCD is the smallest number that both 4 and 3 will divide into evenly. The LCD for the fractions $\frac{3}{4}$ and $\frac{2}{3}$ is 12 because both denominators 4 and 3 divide evenly into 12.

Then, write each fraction with the common denominator 12 to make them like**.** The illustration shows that $\frac{3}{4}$ is equal to $\frac{9}{12}$ and $\frac{2}{3}$ is equal to 8/12. Once each fraction is renamed with a common denominator**,** you can compare the numerators - the larger the numerator the larger the fraction.

Aurora: $\frac{3}{4} = \frac{n}{12}$ $\qquad \frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$

Abigail: $\frac{2}{3} = \frac{n}{12}$ $\qquad \frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$

Solution:

Did you know …

Did you know that fractions as we use them today didn't exist in Europe until the 17th century? In fact, at first, fractions weren't even thought of as numbers in their own right at all, just a way of comparing whole numbers with each other. Who first used fractions? Were they always written in the same way? How did fractions reach us here? You will learn more about fractions in the next few lessons.

The word fraction actually comes from the Latin "fractio" which means to break.