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CHAPTER 14

Fractions

Worksheet 1 Understanding Fractions

Complete.

Example

The **whole** is divided into 4 **equal parts**.

1 part is shaded.

1 out of 4 parts is shaded.

Fraction shaded = $\frac{1}{4}$

$\frac{1}{4}$ is read as one-fourth.

1.

The whole is divided into _____ equal parts.

_____ parts are shaded.

_____ out of _____ parts are shaded.

Fraction shaded = _____

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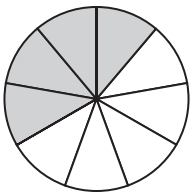
Complete.

2. 

The whole is divided into _____ equal parts.

_____ parts are shaded.

_____ out of _____ parts are shaded.

Fraction shaded = _____

Write in words.

Example

$\frac{2}{9}$ two-ninths

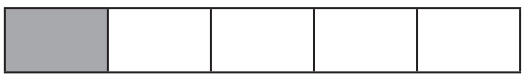
3. $\frac{4}{5}$ _____

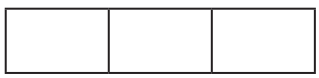
4. $\frac{2}{3}$ _____

5. $\frac{3}{10}$ _____

Shade the part(s) to show each fraction.

Example

$\frac{1}{5}$ 

6. $\frac{2}{3}$ 

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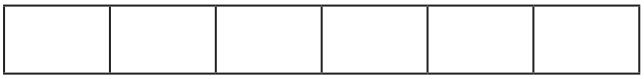
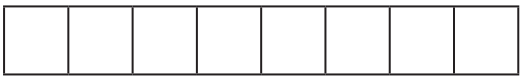
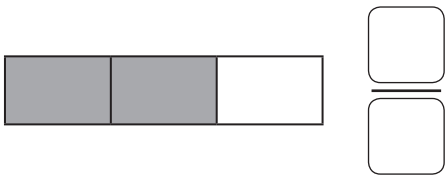
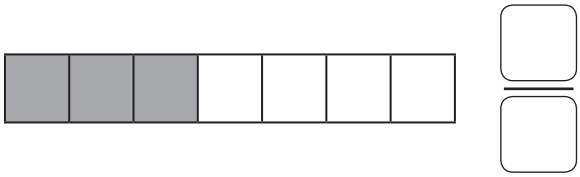
7. $\frac{5}{6}$ 

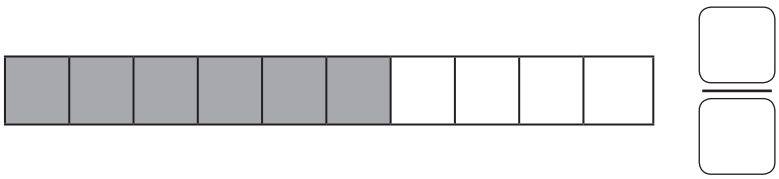
8. $\frac{3}{8}$ 

9. $\frac{7}{12}$ 

Write the fraction that shows the fraction part of the diagram.

10. 

11. 

12. 

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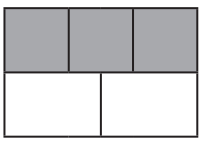
Do the following models correctly show the fractions? Why or why not?

13.  $\frac{2}{3}$

_____

_____

14.  $\frac{3}{5}$

_____

_____

15.  $\frac{1}{6}$

_____

_____

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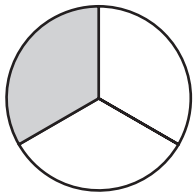
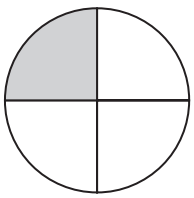
Fill in each missing numerator or denominator.

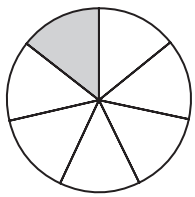
Example

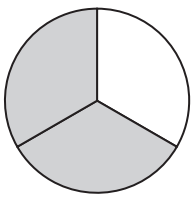


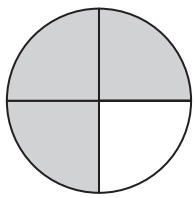
$\frac{1}{3}$ ← **numerator**

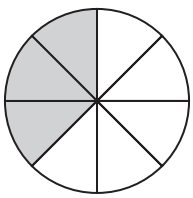
$\frac{1}{3}$ ← **denominator**

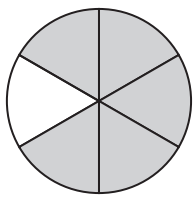
16.  $\frac{1}{\square}$

17.  $\frac{\square}{7}$

18.  $\frac{\square}{3}$

19.  $\frac{3}{\square}$

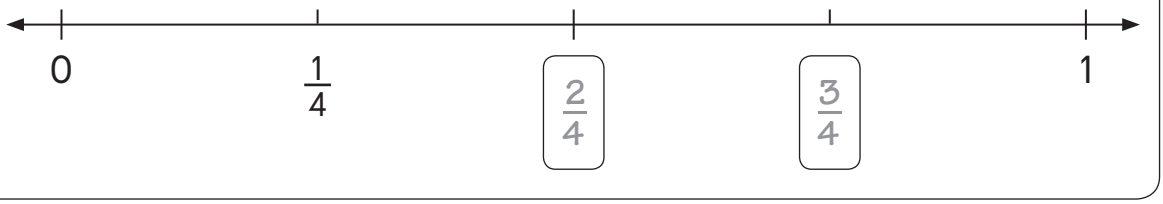
20.  $\frac{\square}{\square}$

21.  $\frac{\square}{\square}$

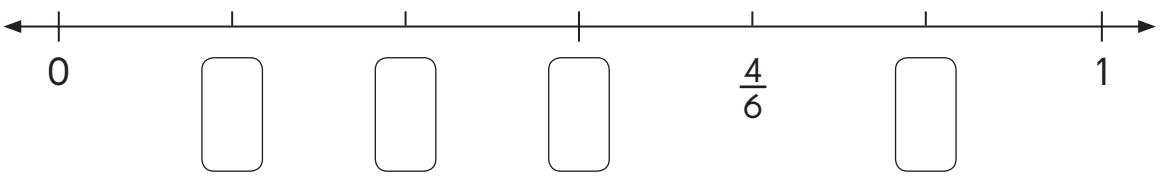
Name: _____ **Date:** _____

Complete the number line.

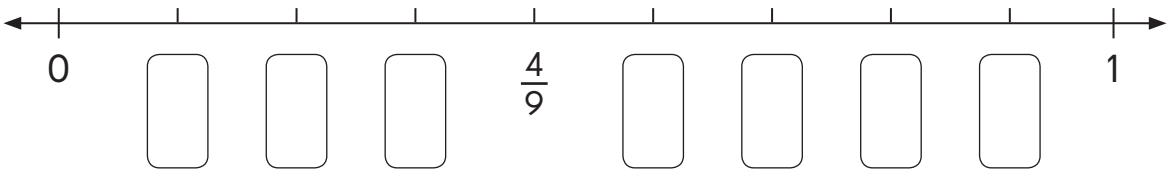
Example



22.

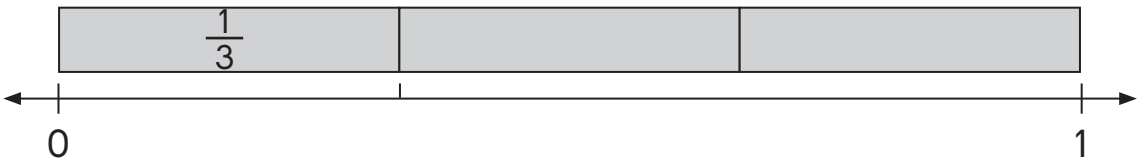


23.



Complete the number line with fraction bars to show one whole.

Example



24.

25.

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Worksheet 2 Understanding Equivalent Fractions

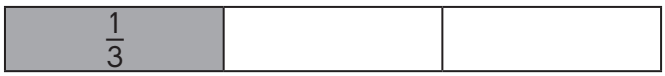
Complete each equivalent fraction.

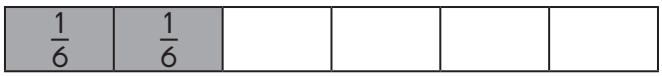
Example

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

$\frac{1}{2}$ and $\frac{2}{4}$ are **equivalent fractions**. Equivalent fractions are two or more fractions that name the same part of a whole.

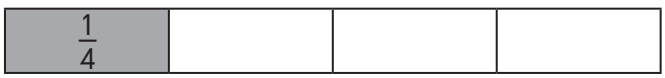
1.

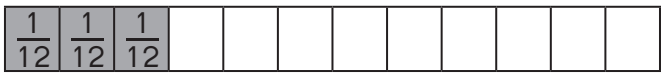




$\frac{1}{3} = \frac{\square}{6}$

2.





$\frac{1}{4} = \frac{\square}{12}$

3.

$\frac{1}{2} = \frac{\square}{\square}$

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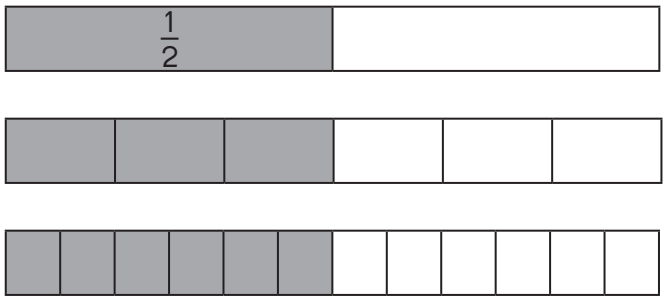
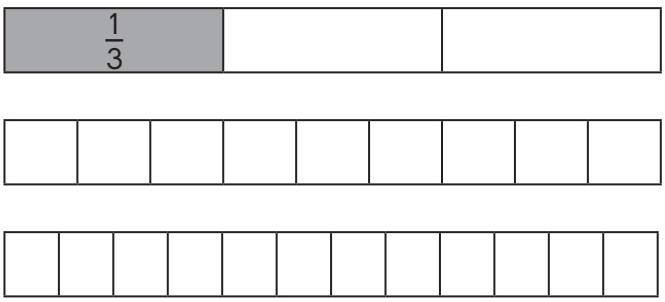
Shade the parts to show the equivalent fractions. Then write the fractions.

Example



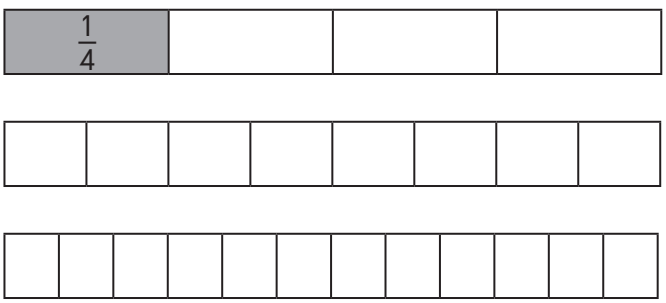
$\frac{1}{2} = \frac{3}{6} = \frac{6}{12}$

4.



$\frac{1}{3} = \frac{\square}{\square} = \frac{\square}{\square}$

5.



$\frac{1}{4} = \frac{\square}{\square} = \frac{\square}{\square}$

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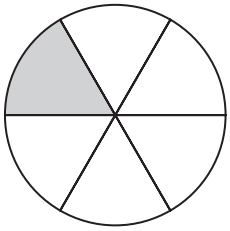
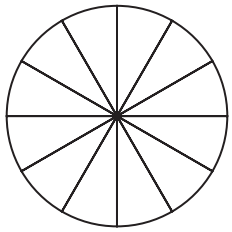
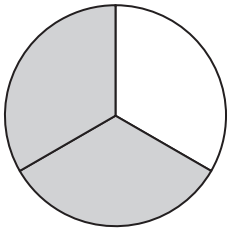
6.

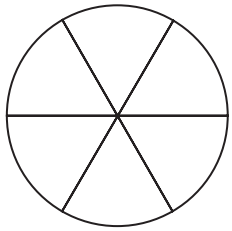


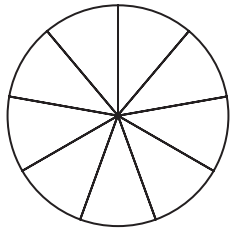


$\frac{1}{6} = \frac{\square}{\square}$

7.





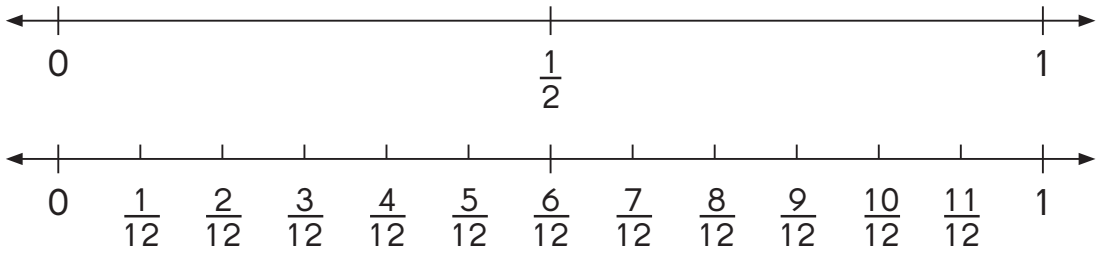


$\frac{2}{3} = \frac{\square}{\square} = \frac{\square}{\square}$

Name: _____ **Date:** _____

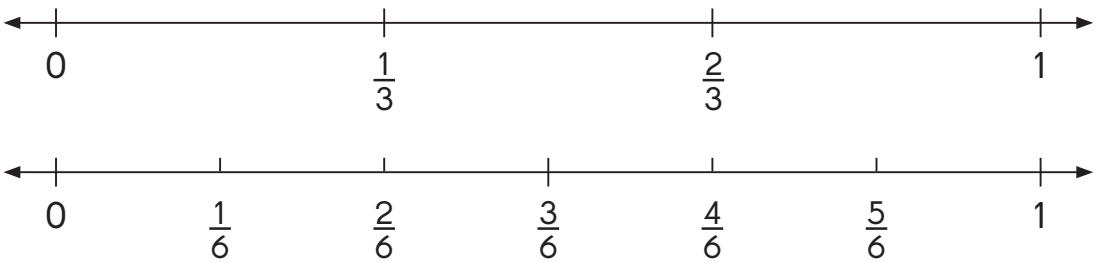
Use the number lines to find equivalent fractions.

Example



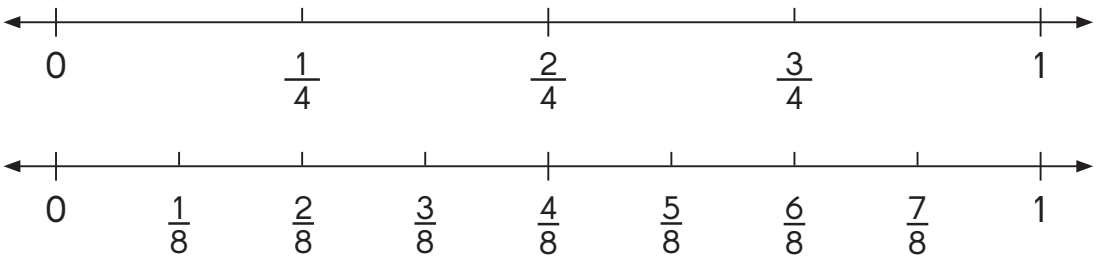
$\frac{1}{2} = \frac{6}{12}$

8.



$\frac{1}{3} = \frac{\square}{6}$

9.



$\frac{3}{4} = \frac{\square}{8}$

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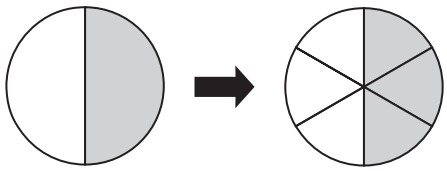
Worksheet 3 More Equivalent Fractions

Find equivalent fractions using multiplication.
Fill in the missing numerators and denominators.

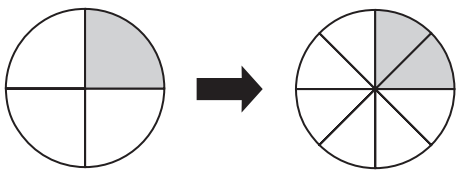
Example

$$\frac{1}{2} \overset{\times 3}{=} \frac{3}{6} \overset{\times 3}{}$$



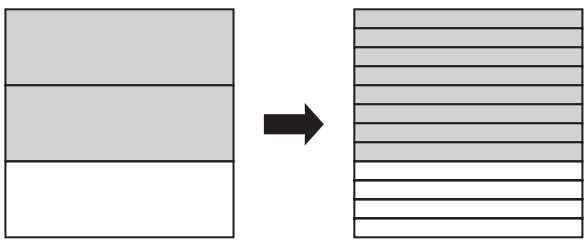
1.

$$\frac{1}{4} \overset{\times 2}{=} \frac{\square}{\square} \overset{\times 2}{}$$



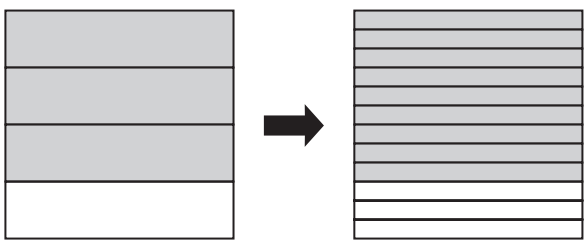
2.

$$\frac{2}{3} \overset{\times 4}{=} \frac{\square}{\square} \overset{\times 4}{}$$



3.

$$\frac{3}{4} \overset{\times 3}{=} \frac{\square}{\square} \overset{\times 3}{}$$



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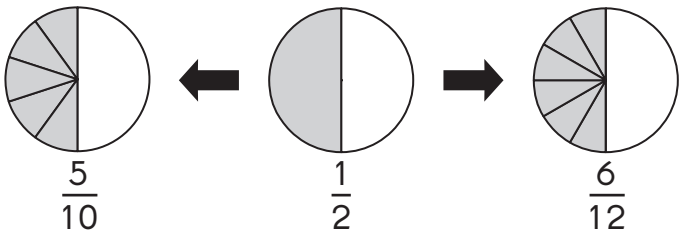
Fill in the missing numbers in the boxes.

Example



$\frac{1}{2} \times \square = \frac{5}{10} \times \square$

$\frac{1}{2} \times \square = \frac{5}{12} \times \square$

4.

$\frac{2}{3} \times \square = \frac{6}{9} \times \square$

$\frac{2}{3} \times \square = \frac{8}{12} \times \square$

5.

$\frac{3}{5} \times \square = \frac{6}{10} \times \square$

$\frac{3}{5} \times \square = \frac{9}{15} \times \square$

Name: _____ Date: _____

Find each equivalent fraction.

Example

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

6. $\frac{2}{5} = \frac{2 \times 2}{5 \times 2} = \frac{\square}{\square}$

7. $\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{\square}{\square}$

Fill in the missing numbers.

Example

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

8. $\frac{4}{5} = \frac{4 \times \square}{5 \times \square} = \frac{8}{\square}$

9. $\frac{5}{6} = \frac{5 \times \square}{6 \times \square} = \frac{\square}{12}$

Name: _____ **Date:** _____

Find each equivalent fraction.

Example

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

10. $\frac{4}{6} = \frac{8}{\square}$

11. $\frac{3}{4} = \frac{\square}{12}$

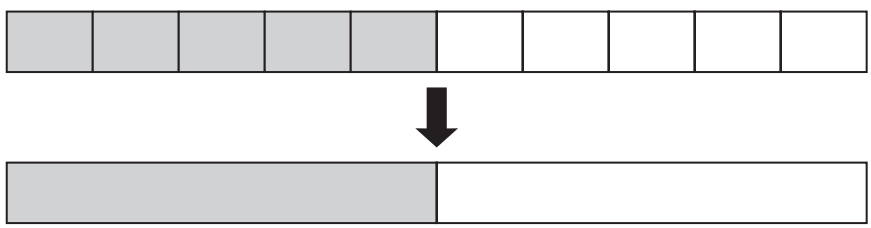
12. $\frac{2}{3} = \frac{6}{\square}$

13. $\frac{3}{5} = \frac{\square}{20}$

Find equivalent fractions using division.

Example

$\frac{5}{10} = \frac{\boxed{1}}{\boxed{2}}$ (÷ 5 above, ÷ 5 below)



$\frac{1}{2}$ is the **simplest form** of $\frac{5}{10}$.
We use division to find a fraction in its simplest form.

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14.

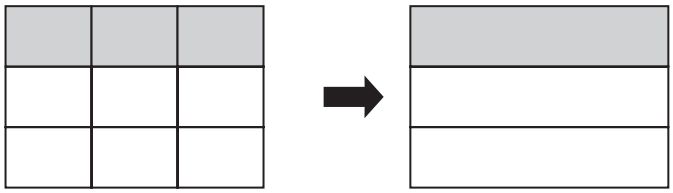
$$\frac{4}{12} = \frac{\square}{\square}$$

(÷ 4 above, ÷ 4 below)

15.

$$\frac{3}{9} = \frac{\square}{\square}$$

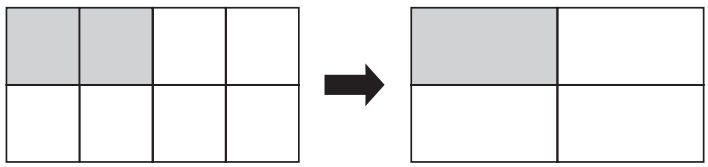
(÷ 3 above, ÷ 3 below)



16.

$$\frac{2}{8} = \frac{\square}{\square}$$

(÷ 2 above, ÷ 2 below)



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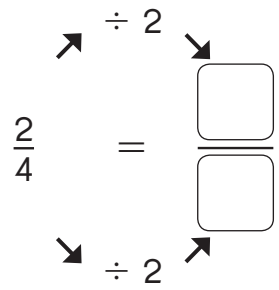
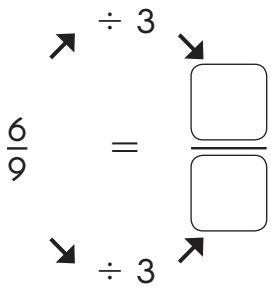
Fill in the missing numbers.

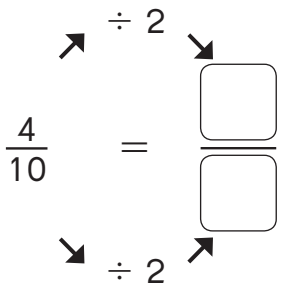
Example



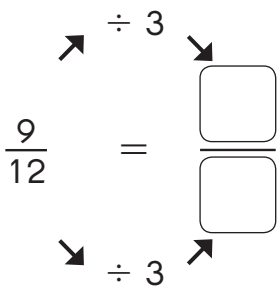
17.



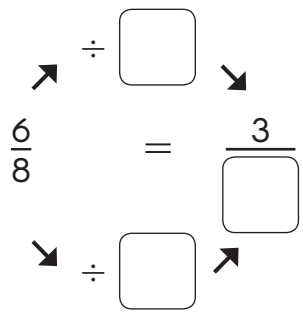
18.



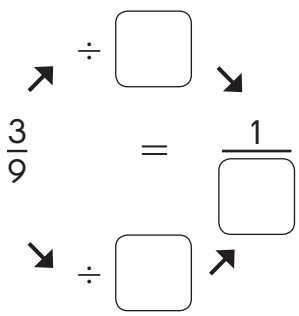
19.



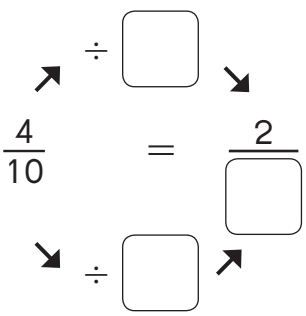
20.



21.



22.



Name: _____ **Date:** _____

23. $\frac{3}{6} = \frac{3 \div 3}{6 \div 3} = \frac{\square}{\square}$

24. $\frac{10}{12} = \frac{10 \div 2}{12 \div 2} = \frac{\square}{\square}$

25. $\frac{2}{8} = \frac{2 \div 2}{8 \div 2} = \frac{\square}{\square}$

26. $\frac{8}{10} = \frac{8 \div \square}{10 \div \square} = \frac{4}{\square}$

Name: _____ **Date:** _____

Write each fraction in simplest form.

Example

$\frac{8}{12} = \frac{\boxed{4}}{\boxed{6}} = \frac{\boxed{2}}{\boxed{3}}$

$\frac{4}{6}$ is not in simplest form because you can continue to divide the numerator and denominator of $\frac{4}{6}$ by the same number.

27. $\frac{12}{18} = \frac{\square}{\square}$

28. $\frac{4}{8} = \frac{\square}{\square}$

29. $\frac{6}{10} = \frac{\square}{\square}$

30. $\frac{12}{16} = \frac{\square}{\square}$

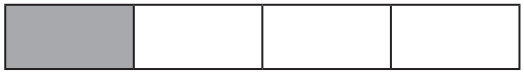
Name: _____ Date: _____

Worksheet 4 Comparing Fractions

Fill in the blanks.

Example

$\frac{2}{4}$



$\frac{1}{4}$

$\frac{1}{4}$ is less than $\frac{2}{4}$.

1.

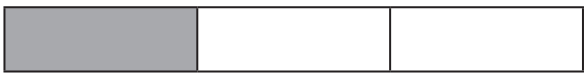
$\frac{\square}{\square}$

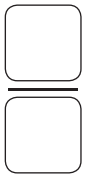
$\frac{\square}{\square}$

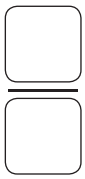
$\frac{\square}{\square}$ is less than $\frac{\square}{\square}$.

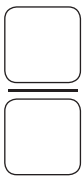
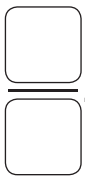
Name: _____ **Date:** _____

2.

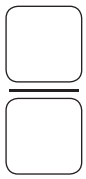


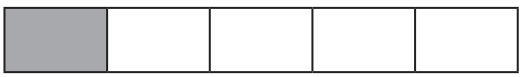


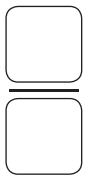


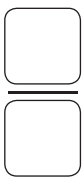
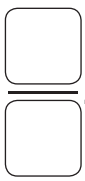
 is greater than  .

3.







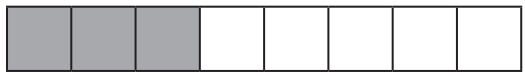
 is greater than  .

Name: _____ **Date:** _____

Shade the bar models to show which is greater.

Example

$\frac{3}{8}$



$\frac{5}{8}$

$\frac{5}{8}$ is greater than $\frac{3}{8}$.

Like fractions have the same denominator. So you only need to compare the numerators.

$5 > 3$

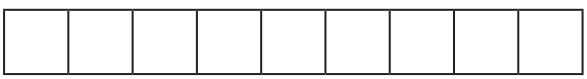
So, $\frac{5}{8} > \frac{3}{8}$.

4. $\frac{9}{12}$

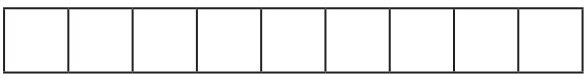
$\frac{7}{12}$

_____ is greater than _____.

5. $\frac{5}{9}$



$\frac{8}{9}$

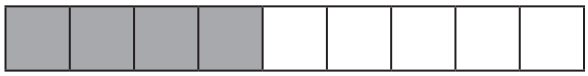


_____ is greater than _____.

Name: _____ **Date:** _____

Order the fractions from least to greatest.

Example

$\frac{4}{9}$ 

$\frac{7}{9}$ 

$\frac{5}{9}$ 

$\frac{4}{9}$, $\frac{5}{9}$, $\frac{7}{9}$

_____, _____, _____

least

6.

$\frac{7}{12}$ 

$\frac{11}{12}$ 

$\frac{3}{12}$ 

_____, _____, _____

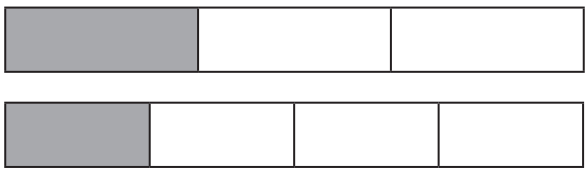
least

Name: _____ **Date:** _____

Compare the fractions. Then fill in the blanks.

Example

$\frac{1}{3}$ and $\frac{1}{4}$



The fractions have the same numerator, so compare the denominators. The greater fraction is the one with the smaller denominator.

$\frac{1}{3}$ is greater than $\frac{1}{4}$.

7. $\frac{2}{5}$ and $\frac{2}{7}$

_____ is greater than _____.

8. $\frac{5}{12}$ and $\frac{5}{8}$

_____ is greater than _____.

9. $\frac{4}{9}$ and $\frac{4}{11}$

_____ is greater than _____.

Name: _____ **Date:** _____

Compare the fractions.

Example

$\frac{5}{6}$

$\frac{2}{3} = \frac{4}{6}$

$\frac{5}{6}$ is greater than $\frac{2}{3}$.

10.

$\frac{\square}{\square}$

$\frac{\square}{\square} = \frac{\square}{\square}$

_____ is greater than _____.

Name: _____ **Date:** _____

11.

$\frac{\square}{\square}$

$\frac{\square}{\square} = \frac{\square}{\square}$

_____ is greater than _____.

12.

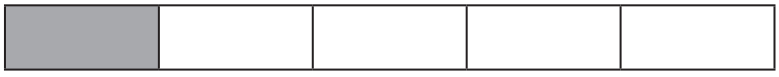
$\frac{\square}{\square}$

$\frac{\square}{\square}$

_____ is greater than _____.

13.

$\frac{\square}{\square}$



$\frac{\square}{\square} = \frac{\square}{\square}$

_____ is greater than _____.

Name: _____ **Date:** _____

Compare the fractions.

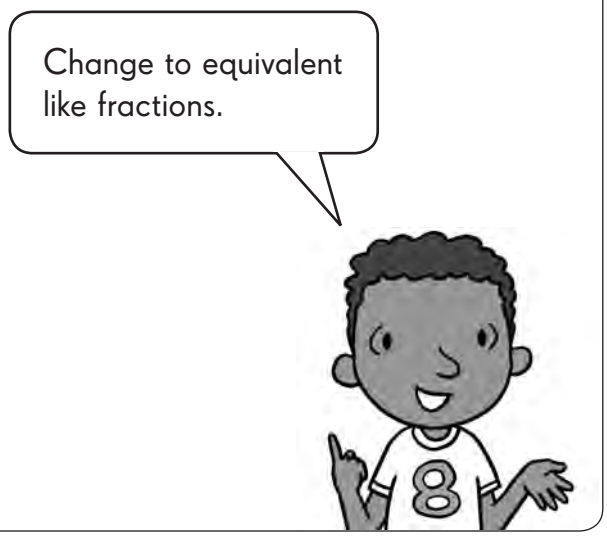
Example

Which is greater, $\frac{2}{3}$ or $\frac{5}{9}$?

$\frac{2}{3} = \frac{2 \times \boxed{3}}{3 \times \boxed{3}} = \frac{\boxed{6}}{9}$

$\frac{6}{9}$ is greater than $\frac{5}{9}$.

So, $\frac{2}{3}$ is greater.



14. Which is greater, $\frac{7}{12}$ or $\frac{1}{2}$?

$\frac{1}{2} = \frac{1 \times \square}{2 \times \square} = \frac{\square}{12}$

$\frac{7}{12}$ is greater than _____.

So, _____ is greater.

15. Which is greater, $\frac{3}{4}$ or $\frac{3}{7}$?

$\frac{3}{4} = \frac{3 \times \square}{4 \times \square} = \frac{\square}{28}$ $\frac{3}{7} = \frac{3 \times \square}{7 \times \square} = \frac{\square}{28}$

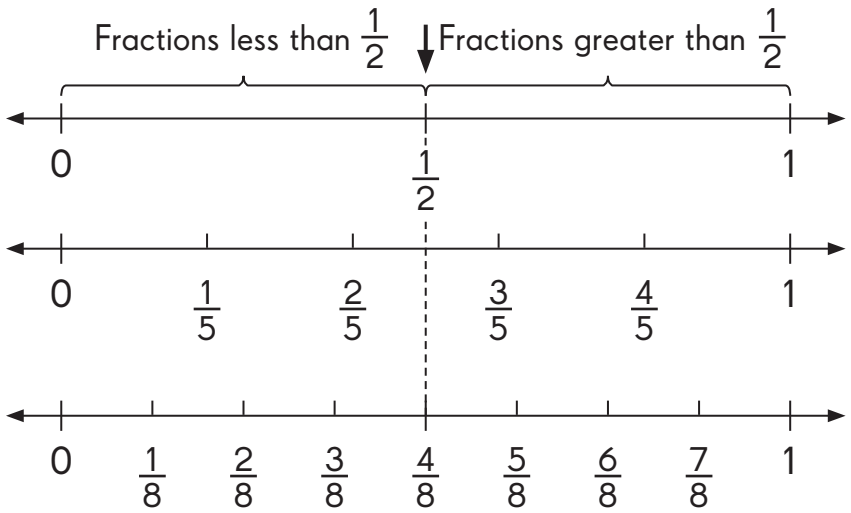
_____ is greater than _____.

So, _____ is greater.

Name: _____ **Date:** _____

Compare. Write > or <.

Use $\frac{1}{2}$ as a benchmark.



Example

$\frac{2}{5}$ < $\frac{1}{2}$

$\frac{7}{8}$ > $\frac{1}{2}$

So, $\frac{2}{5}$ < $\frac{7}{8}$.

When you compare fractions with $\frac{1}{2}$ like this, you are using $\frac{1}{2}$ as a **benchmark**.

16. $\frac{4}{5}$ ◯ $\frac{1}{2}$

$\frac{3}{8}$ ◯ $\frac{1}{2}$

So, $\frac{4}{5}$ ◯ $\frac{3}{8}$.

Name: _____ **Date:** _____

Order the fractions from least to greatest.

Example

$\frac{2}{7}, \frac{5}{7}, \frac{4}{7}$

$\frac{2}{7}$, $\frac{4}{7}$, $\frac{5}{7}$

least

17. $\frac{5}{12}, \frac{3}{4}, \frac{2}{3}$

_____, _____, _____

least

18. $\frac{1}{2}, \frac{3}{10}, \frac{2}{5}$

_____, _____, _____

least

19. $\frac{3}{8}, \frac{3}{5}, \frac{3}{7}$

_____, _____, _____

least

20. $\frac{3}{8}, \frac{1}{8}, \frac{3}{4}$

_____, _____, _____

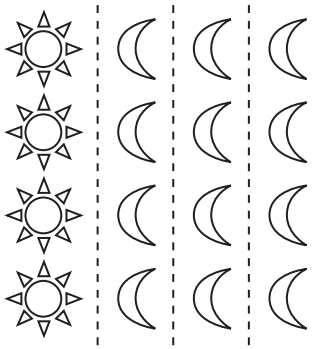
least

Name: _____ Date: _____

Worksheet 5 Fraction as a Whole or a Set

Solve.

Example



The set of shapes is divided into 4 equal groups.

3 out of 4 groups are moons.

$\frac{3}{4}$ of the shapes are moons.

1.

The set of stars is divided into 3 equal groups.

_____ out of 3 groups is shaded.

_____ of the stars are shaded.

Name: _____ **Date:** _____

Solve.

2.

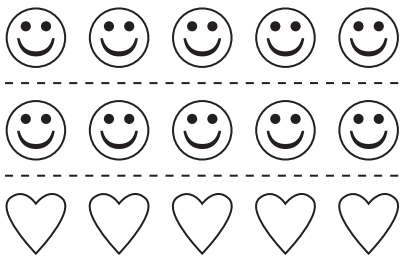
The set of diamonds is divided into 5 equal groups.

_____ out of 5 groups are shaded.

_____ of the diamonds are shaded.

Solve.

Eliza has 15 stickers in all.



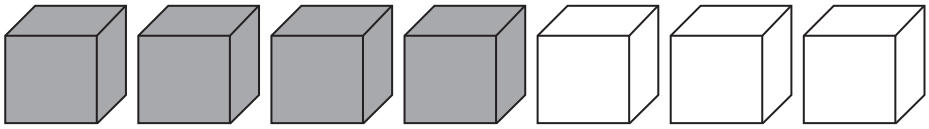
3. What fraction of the stickers are happy-face stickers? ☐

4. What fraction of the stickers are heart-shaped stickers? ☐

Name: _____ **Date:** _____

Solve.

Example



There are 7 boxes.

4 out of 7 boxes are black.

$\frac{4}{7}$ of the boxes are black.

3 out of 7 of boxes are white.

$\frac{3}{7}$ of the boxes are white.

7 out of 7 boxes are black or white.

$\frac{7}{7}$ = 1 whole

The whole set of boxes are black or white boxes.

5.

There are _____ berries.

_____ out of _____ berries are blueberries.

_____ of the berries are blueberries.

_____ out of _____ berries are strawberries.

_____ of the berries are strawberries.

Name: _____ Date: _____

Complete.

Example

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

6. $\frac{\square}{12} = 1$

7. $\frac{5}{\square} = 1$

8. $\frac{7}{\square} = 1$

9. $\frac{\square}{9} = 1$

10. $\frac{6}{\square} = 1$

Complete the fractions that give 2 wholes.

Example

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

11. $\frac{\square}{3} = 2$

12. $\frac{\square}{5} = 2$

13. $\frac{12}{\square} = 2$

14. $\frac{14}{\square} = 2$

15. $\frac{16}{\square} = 2$

Name: _____ Date: _____

Complete the fractions that give 3 wholes.

Example

$3 = \frac{15}{5}$

16. $3 = \frac{\square}{2}$

17. $3 = \frac{\square}{3}$

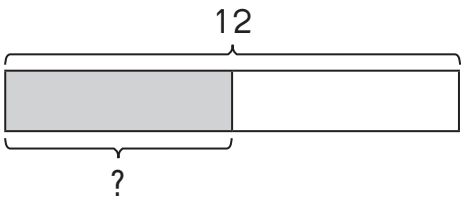
18. $3 = \frac{\square}{6}$

19. $3 = \frac{\square}{10}$

Fill in the blanks

Example

Find $\frac{1}{2}$ of 12.



2 units → 12

1 unit → 12 ÷ 2 = 6

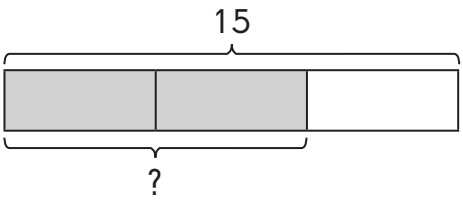
So, $\frac{1}{2}$ of 12 = 6.

Draw a bar model.
Divide it into 2 parts.
Shade 1 part.

Name: _____ **Date:** _____

Fill in the blanks

20. Find $\frac{2}{3}$ of 15.



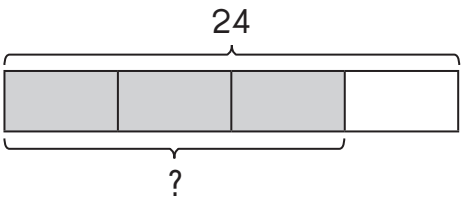
3 units → _____

1 unit → 15 ÷ 3 = _____

2 units → _____ × 2 = _____

So, $\frac{2}{3}$ of 15 = _____.

21. Find $\frac{3}{4}$ of 24.



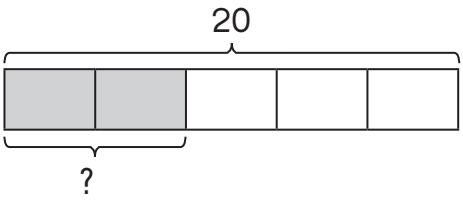
4 units → _____

1 unit → 24 ÷ 4 = _____

3 units → _____ × 3 = _____

So, $\frac{3}{4}$ of 15 = _____.

22. Find $\frac{2}{5}$ of 20.



5 units → _____

1 unit → 20 ÷ 5 = _____

2 units → _____ × 2 = _____

So, $\frac{2}{5}$ of 20 = _____.