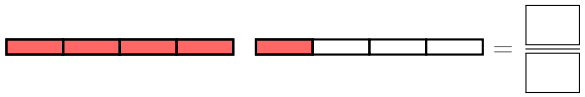
FRACTIONS

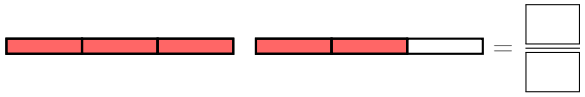
A DEFINITIONS

A.1 FINDING FRACTIONS

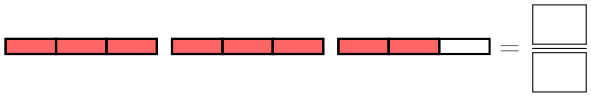
Ex 1: A bar represents 1. Find the fraction that represents the shaded part:



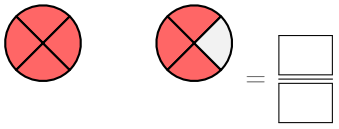
Ex 2: A bar represents 1. Find the fraction that represents the shaded part:



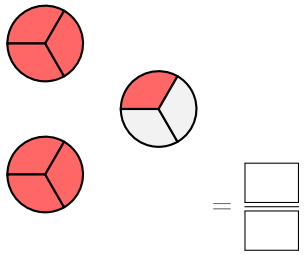
Ex 3: A bar represents 1. Find the fraction that represents the shaded part:



Ex 4: A circle represents 1. Find the fraction that represents the shaded part:



Ex 5: A circle represents 1. Find the fraction that represents the shaded part:



A.2 WRITING FRACTIONS FROM WORDS

Ex 6: Write as fraction:

one over four$=$

Ex 7: Write as fraction:

three over five $=$

Ex 8: Write as fraction:

three quarters $=$

Ex 9: Write as fraction:

six over hundred $=$

B FRACTION AS QUOTIENT

B.1 CONVERTING DIVISION TO FRACTIONS

Ex 10: Write as a fraction:

$$3 \div 2 =$$

Ex 11: Write as a fraction:

$$2 \div 5 =$$

Ex 12: Write as a fraction:

$$3 \div 4 =$$

Ex 13: Write as a fraction:

$$5 \div 3 =$$

B.2 CONVERTING FRACTIONS TO DIVISION EXPRESSIONS

Ex 14: Convert the fraction into a division expression:

$$\frac{2}{5} = \square \div \square$$

Ex 15: Convert the fraction into a division expression:

$$\frac{4}{7} = \square \div \square$$

Ex 16: Convert the fraction into a division expression:

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

Ex 17: Convert the fraction into a division expression:

$$\frac{6}{9} = \square \div \square$$

B.3 CONVERTING FRACTIONS TO WHOLE NUMBERS

Ex 18: Convert the fraction into a whole number:

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

Ex 19: Convert the fraction into a whole number:

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

Ex 20: Convert the fraction into a whole number:

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

Ex 21: Convert the fraction into a whole number:

$$\frac{5}{5} = \square$$

B.4 FINDING FRACTIONS IN WORD PROBLEMS

Ex 22: Four friends share 3 cakes equally. What fraction does each friend get?

$\square$ of a cake

Ex 23: Five friends share 2 pizzas equally. What fraction does each friend get?

$\square$ of a pizza

Ex 24: A couple shares 5 chocolate bars equally. What fraction of a chocolate bar does each person get?

$\square$ of a chocolate bar

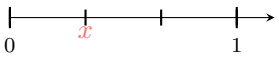
Ex 25: Six family members share 2 apple pies equally. What fraction of a pie does each family member get?

$\square$ of a pie

C ON THE NUMBER LINE

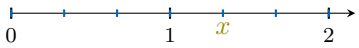
C.1 FINDING FRACTIONS

Ex 26: Find the value of x



$x = \square$

Ex 27: Find the value of x

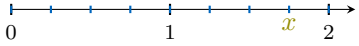


$x = \square$

Ex 28: Find the value of x

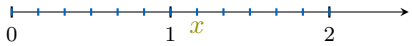
$x = \square$

Ex 29: Find the value of x



$x = \square$

Ex 30: Find the value of x



$x = \square$

D EQUIVALENT FRACTIONS

D.1 FINDING THE MISSING NUMERATOR

Ex 31:

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

Ex 32:

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

Ex 33:

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

Ex 34:

$$\frac{16}{12} = \frac{\square}{3}$$

Ex 35:

$$\frac{4}{10} = \frac{\square}{5}$$

D.2 FINDING THE MISSING NUMERATOR

Ex 36:

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

Ex 37:

$$\frac{4}{3} = \frac{\square}{15}$$

Ex 38:

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

Ex 39:

$$\frac{5}{6} = \frac{\square}{12}$$

Ex 40:

$$\frac{7}{8} = \frac{\square}{32}$$

D.3 FINDING THE MISSING DENOMINATOR

Ex 41:

$$\frac{4}{10} = \frac{2}{\square}$$

Ex 42:

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

Ex 43:

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

Ex 44:

$$\frac{12}{10} = \frac{6}{\square}$$

D.4 FINDING THE MISSING DENOMINATOR

Ex 45:

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

Ex 46:

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

Ex 47:

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

Ex 48:

$$\frac{4}{7} = \frac{12}{\square}$$

Ex 49:

$$\frac{5}{9} = \frac{20}{\square}$$

E SIMPLIFICATION

E.1 SIMPLIFYING FRACTIONS

Ex 50: Simplify:

$$\frac{4}{6} = \frac{\square}{\square}$$

Ex 51: Simplify:

$$\frac{24}{16} = \frac{\square}{\square}$$

Ex 52: Simplify:

$$\frac{12}{20} = \frac{\square}{\square}$$

Ex 53: Simplify:

$$\frac{30}{100} = \frac{\square}{\square}$$

Ex 54: Simplify:

$$\frac{25}{100} = \frac{\square}{\square}$$

F CROSS MULTIPLICATION

F.1 SOLVING PROPORTIONS USING CROSS-MULTIPLICATION

Ex 55: Solve x for $\frac{12}{4} = \frac{x}{6}$ (you can use a calculator).

$$x = \square$$

Ex 56: Solve x for $\frac{11}{10} = \frac{x}{5}$ (you can use a calculator).

$$x = \square$$

Ex 57: Solve x for $\frac{12}{10} = \frac{18}{x}$ (you can use a calculator).

$$x = \square$$

Ex 58: Solve x for $\frac{27}{x} = \frac{30}{10}$ (you can use a calculator).

$$x = \square$$

G ADDITION AND SUBTRACTION

G.1 ADDING AND SUBTRACTING FRACTIONS WITH COMMON DENOMINATORS

Ex 59:

$$\frac{2}{6} + \frac{3}{6} = \frac{\square}{\square}$$

Ex 60:

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

Ex 61:

$$\frac{4}{5}+\frac{2}{5}=\frac{\square}{\square}$$

Ex 62:

$$\frac{3}{4}-\frac{2}{4}=\frac{\square}{\square}$$

Ex 63:

$$\frac{4}{5}-\frac{3}{5}=\frac{\square}{\square}$$

Ex 64:

$$\frac{4}{3}-\frac{2}{3}=\frac{\square}{\square}$$

G.2 SOLVING REAL-WORLD PROBLEMS

Ex 65: Louis has a whole cake. He cuts it into 8 equal slices and eats 3 slices. What fraction of the whole cake remains?

$\frac{\square}{\square}$ of the cake

Ex 66: Today, Louis eats $\frac{1}{2}$ of a croissant. Then, Louis eats $\frac{1}{4}$ of another croissant. How much croissant did Louis eat in total?

$\frac{\square}{\square}$ of a croissant

Ex 67: At the beginning, there are $\frac{5}{6}$ of a cake. After eating, there are $\frac{2}{3}$ of the cake. What quantity of cake did Louis eat?

$\frac{\square}{\square}$ of the cake

Ex 68: At the beginning, there are $\frac{7}{8}$ of a pizza. After eating, there are $\frac{3}{4}$ of the pizza. What quantity of pizza did Louis eat?

$\frac{\square}{\square}$ of the pizza

Ex 69: Louis read $\frac{2}{5}$ of his book on Saturday and $\frac{3}{10}$ of his book on Sunday. How much of his book did Louis read in total?

$\frac{\square}{\square}$ of the book

G.3 ADDING FRACTIONS WITH UNLIKE DENOMINATORS

Ex 70: Calculate and simplify:

$$\frac{2}{3}+\frac{3}{5}=\frac{\square}{\square}$$

Ex 71: Calculate and simplify:

$$\frac{1}{2}+\frac{2}{3}=\frac{\square}{\square}$$

Ex 72: Calculate and simplify:

$$\frac{3}{2}+\frac{4}{5}=\frac{\square}{\square}$$

Ex 73: Calculate and simplify:

$$\frac{3}{4}+\frac{5}{6}=\frac{\square}{\square}$$

Ex 74: Calculate and simplify:

$$\frac{7}{8}+\frac{11}{6}=\frac{\square}{\square}$$

H MULTIPLICATION OF A FRACTION BY A NUMBER

H.1 MULTIPLYING OF FRACTIONS BY WHOLE NUMBERS

Ex 75: Calculate and simplify:

$$3\times\frac{2}{5}=\frac{\square}{\square}$$

Ex 76: Calculate and simplify:

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

Ex 77: Calculate and simplify:

$$4\times\frac{1}{6}=\frac{\square}{\square}$$

Ex 78: Calculate and simplify:

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

H.2 SOLVING REAL-WORLD PROBLEMS

Ex 79: Su has a big, delicious cake in front of her. Each time she eats, she takes $\frac{1}{4}$ of the cake. She does this 3 times. How much of the cake does Su eat in total?

$\square$ of the cake

Ex 80: A baker is making mini-muffins. Each mini-muffin requires $\frac{2}{7}$ of a cup of batter. The baker wants to make 3 batches of mini-muffins. How much batter does the baker need in total?

$\square$ of a cup of batter

Ex 81: A track is $\frac{1}{4}$ of a mile long. If a runner runs around the track 5 times, how many miles did the runner run?

$\square$ miles

Ex 82: A recipe for cookies calls for $\frac{2}{3}$ of a cup of sugar. If you want to make 4 batches of cookies, how many cups of sugar do you need?

$\square$ cups of sugar

I MULTIPLICATION OF FRACTIONS

I.1 MULTIPLYING OF FRACTIONS

Ex 83: Calculate and simplify:

$$\frac{1}{2} \times \frac{2}{3} = \frac{\square}{\square}$$

Ex 84: Calculate and simplify:

$$\frac{1}{2} \times \frac{3}{4} = \frac{\square}{\square}$$

Ex 85: Calculate and simplify:

$$\frac{3}{4} \times \frac{3}{5} = \frac{\square}{\square}$$

Ex 86: Calculate and simplify:

$$\frac{5}{6} \times \frac{2}{3} = \frac{\square}{\square}$$

I.2 MULTIPLYING OF FRACTIONS

Ex 87: Calculate and simplify:

$$\frac{4}{3} \times \frac{9}{5} = \frac{\square}{\square}$$

Ex 88: Calculate and simplify:

$$\frac{2}{5} \times \frac{5}{8} = \frac{\square}{\square}$$

Ex 89: Calculate and simplify:

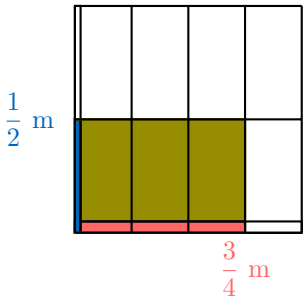
$$\frac{3}{7} \times \frac{14}{9} = \frac{\square}{\square}$$

Ex 90: Calculate and simplify:

$$\frac{8}{15} \times \frac{3}{4} = \frac{\square}{\square}$$

I.3 SOLVING REAL-WORLD PROBLEMS

Ex 91:



Calculate the area of the vegetable garden:

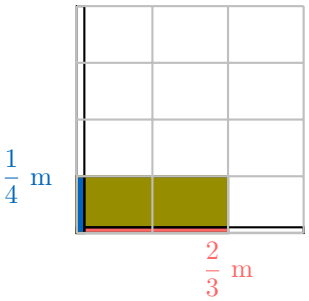
$\square$ square meters.

Ex 92: At Tariel High School, $\frac{4}{5}$ of the students are involved in extracurricular activities. Of these students, $\frac{2}{3}$ participate in fall activities. What fraction of the total student population at Tariel High School participates in fall activities?

$\square$ of the total students.

Ex 93: A rectangular piece of fabric is used to make a banner. The fabric is $\frac{2}{3}$ meters long and $\frac{1}{4}$ meters wide. What is the area of the banner?

$\square$ square meters.



Ex 94: A farmer has $\frac{2}{3}$ of a field planted with corn. Of that corn section, $\frac{1}{2}$ is irrigated. What fraction of the entire field is irrigated?

$\square$ of the field.

J DIVISION OF FRACTIONS

J.1 FINDING RECIPROCALS

Ex 95: The reciprocal of $\frac{5}{7}$ is $\square$.

Ex 96: The reciprocal of $\frac{3}{8}$ is $\square$.

Ex 97: The reciprocal of $\frac{7}{2}$ is $\square$.

Ex 98: The reciprocal of 4 is $\square$.

J.2 DIVIDING FRACTIONS

Ex 99: Calculate and simplify:

$$\frac{1}{2} \div \frac{3}{4} = \square$$

Ex 100: Calculate and simplify:

$$\frac{2}{3} \div \frac{1}{2} = \square$$

Ex 101: Calculate and simplify:

$$\frac{3}{5} \div \frac{2}{7} = \square$$

Ex 102: Calculate and simplify:

$$\frac{4}{9} \div \frac{2}{3} = \square$$

J.3 DIVIDING FRACTIONS

Ex 103: Simplify:

$$\frac{\frac{1}{2}}{\frac{3}{4}} = \square$$

Ex 104: Simplify:

$$\frac{\frac{4}{9}}{\frac{2}{3}} = \square$$

Ex 105: Simplify:

$$\frac{\frac{4}{3}}{\frac{5}{6}} = \square$$

Ex 106: Simplify:

$$\frac{\frac{4}{10}}{\frac{7}{10}} = \square$$

K SIGN RULES

K.1 SIMPLIFYING WITH RELATIVE NUMBERS

Ex 107: Simplify:

$$\frac{-15}{-30} = \square$$

Ex 108: Simplify:

$$\frac{-9}{12} = \square$$

Ex 109: Simplify:

$$\frac{-10}{-20} = \square$$

Ex 110: Simplify:

$$\frac{22}{-33} = \square$$

K.2 OPERATING WITH FRACTIONS WITH RELATIVE NUMBERS

Ex 111: Calculate and simplify:

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

Ex 112: Calculate and simplify:

$$\frac{3}{4} - \frac{1}{2} = \square$$

Ex 113: Calculate and simplify:

$$\frac{2}{3} - \frac{3}{4} = \square$$

Ex 114: Calculate and simplify:

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

Ex 115: Calculate and simplify:

$$\frac{-2}{3} - \frac{-4}{3} = \square$$

L ORDER OF OPERATIONS

L.1 CALCULATING EXPRESSIONS

Ex 116: Calculate and simplify:

$$\frac{1+7}{3\times 4}=\square$$

Ex 117: Calculate and simplify:

$$\frac{2+8}{4\times 5}=\square$$

Ex 118: Calculate and simplify:

$$\frac{2+5}{3}+1=\square$$

Ex 119: Calculate and simplify:

$$\frac{1}{3\times 2}+\frac{1}{3}=\square$$

Ex 120: Calculate and simplify:

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