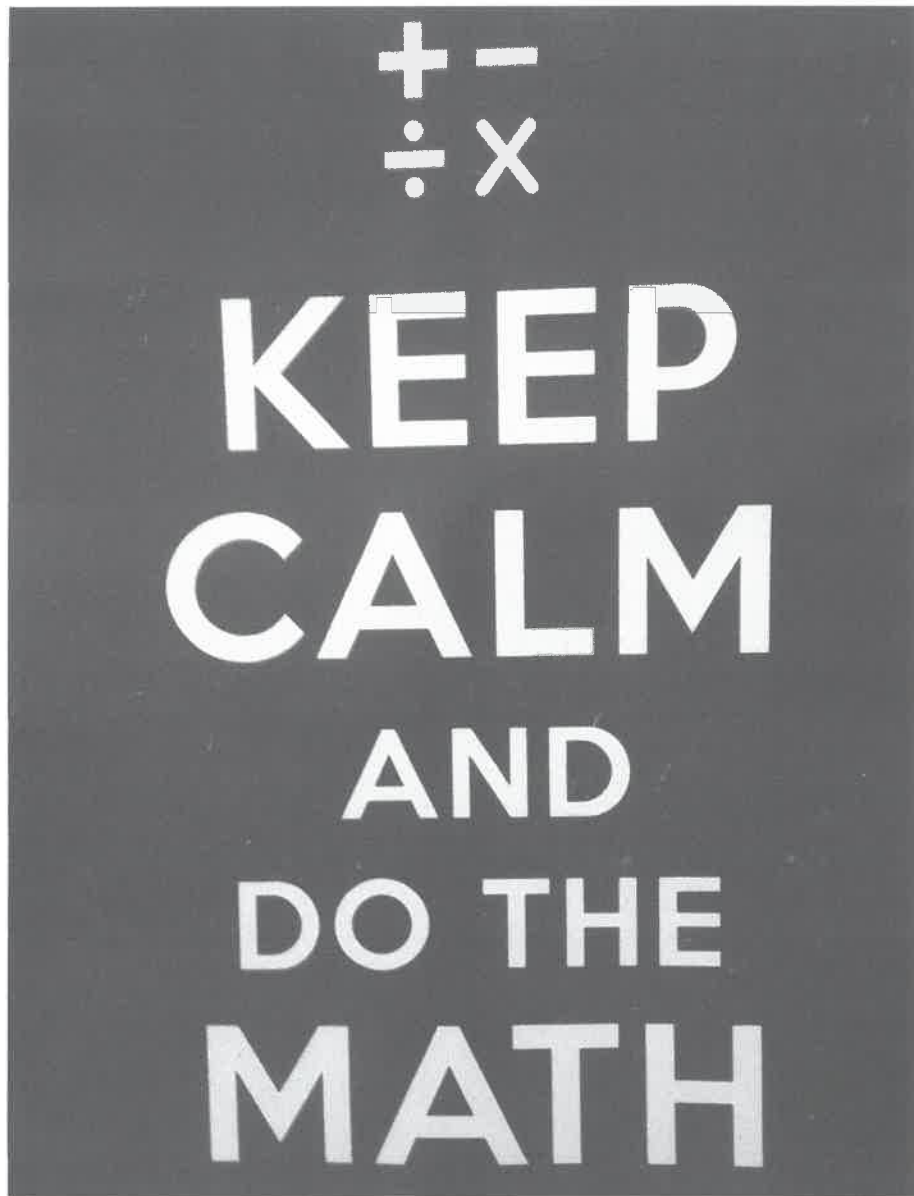


NAME: _____

Math 8

Unit 3: WORKSHEETS

MULTIPLICATION



St. Brendan School
Mr. Martínez

THE SIGNS FOR FRACTION MULTIPLICATION

follow the rules of integer multiplication
(which you already know)

Multiplying Integers Rules

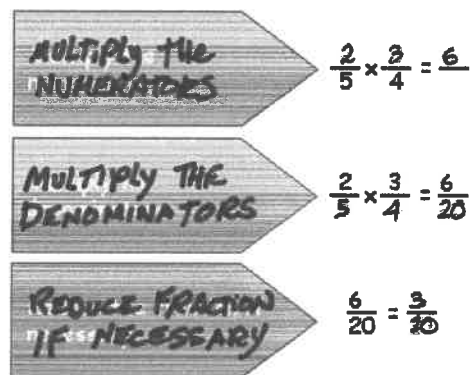
$$\oplus \times \oplus = \oplus$$

$$\ominus \times \ominus = \oplus$$

$$\oplus \times \ominus = \ominus$$

$$\ominus \times \oplus = \ominus$$

MULTIPLICATION OF FRACTIONS



This holds when multiplying 3 or more fractions

$$\frac{1}{3} \times \frac{4}{5} \times \frac{2}{7} = \frac{1 \times 4 \times 2}{3 \times 5 \times 7} = \frac{8}{105}$$

Numerators are multiplied

Denominators are multiplied

MULTIPLY THE FOLLOWING FRACTIONS

Simplify as much as possible

1) $\frac{9}{16} \times \frac{3}{5} =$

2) $\frac{6}{15} \times \frac{5}{6} =$

3) $\frac{7}{9} \times \frac{8}{12} =$

4) $\frac{7}{12} \times \frac{6}{16} =$

5) $\frac{3}{7} \times \frac{7}{9} =$

6) $\frac{4}{8} \times \frac{2}{6} =$

7) $\frac{11}{16} \times \frac{4}{10} =$

8) $\frac{3}{12} \times \frac{1}{15} =$

9) $\frac{11}{15} \times \frac{2}{18} =$

10) $\frac{2}{6} \times \frac{2}{14} =$

MULTIPLY THE FOLLOWING FRACTIONS

Simplify as much as possible

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

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

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

4) $\frac{1}{4} \times \frac{2}{5} =$

5) $\frac{3}{10} \times \frac{2}{4} =$

6) $\frac{5}{10} \times \frac{1}{2} =$

7) $\frac{2}{4} \times \frac{2}{3} =$

8) $\frac{1}{4} \times \frac{6}{10} =$

9) $\frac{1}{5} \times \frac{1}{4} =$

10) $\frac{1}{4} \times \frac{1}{2} =$

MULTIPLYING FRACTIONS USING CROSS-CANCELLING

$$\frac{3}{4} \times \frac{8}{9} = \frac{2}{3} \quad \left(\frac{3}{3}\right) \times \left(\frac{4}{4}\right) \times \frac{2}{3}$$

Method 2: (cross-cancelling)

Step 1: Simplify using cross-cancelling.

Step 2: Multiply the numerators and multiply the denominators.

only when multiplying,
same number
must be in both
numerator
and
denominator

Think about it as **DECOMPOSING** NUMBERS
INTO ITS **FACTORS**!

$$18 = 6 \times 3$$

$$\frac{4}{6} \times \frac{180}{12} = \frac{4}{6} \times \frac{6 \times 3 \times 10}{4 \times 3} = \frac{4 \times 6 \times 3 \times 10}{6 \times 4 \times 3} = 10$$

4 × 3

Cross-Cancelling

$$\frac{6}{7} \times \frac{7}{10} = \frac{6}{\cancel{7}} \times \frac{\cancel{7}}{10} = \frac{6}{10} = \frac{3}{5}$$

MULTIPLY USING CROSS-CANCELLATION

SIMPLIFY IF POSSIBLE

$$1) \quad \frac{1}{3} \times \frac{1}{2} =$$

$$2) \quad \frac{8}{10} \times \frac{1}{5} = \frac{\cancel{4 \times 2}}{\cancel{2 \times 5}} \times \frac{1}{5} = \frac{4 \times 1}{5 \times 5} = \frac{4}{25}$$

$$3) \quad \frac{3}{4} \times \frac{1}{2} =$$

$$4) \quad \frac{3}{4} \times \frac{1}{5} =$$

$$5) \quad \frac{9}{10} \times \frac{1}{2} =$$

$$6) \quad \frac{1}{2} \times \frac{1}{10} =$$

$$7) \quad \frac{6}{10} \times \frac{1}{2} =$$

$$8) \quad \frac{2}{5} \times \frac{2}{4} = \frac{2}{5} \times \frac{2}{\cancel{2 \times 2}} = \frac{\cancel{2 \times 2}}{5 \times \cancel{2 \times 2}} = \frac{1}{5}$$

$$9) \quad \frac{1}{10} \times \frac{1}{3} =$$

$$10) \quad \frac{2}{3} \times \frac{3}{4} =$$

MULTIPLY USING CROSS-CANCELLATION

SIMPLIFY IF POSSIBLE

$$1) \quad \frac{1}{\cancel{5}} \times \frac{\cancel{5}}{10} = \frac{1}{10}$$

$$2) \quad \frac{5}{9} \times \frac{5}{6} =$$

$$3) \quad \frac{2}{4} \times \frac{1}{6} = \frac{\cancel{2}}{\cancel{2} \times 2} \times \frac{1}{\cancel{2} \times 3} = \frac{1}{2 \times 2 \times 3} = \frac{1}{12}$$

$$4) \quad \frac{5}{8} \times \frac{1}{4} =$$

$$5) \quad \frac{4}{7} \times \frac{5}{10} =$$

$$6) \quad \frac{3}{6} \times \frac{5}{7} =$$

$$7) \quad \frac{7}{10} \times \frac{1}{4} =$$

$$8) \quad \frac{1}{9} \times \frac{7}{10} =$$

$$9) \quad \frac{1}{2} \times \frac{2}{8} =$$

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

$$11) \quad \frac{3}{7} \times \frac{1}{10} =$$

$$12) \quad \frac{5}{7} \times \frac{4}{6} =$$

$$13) \quad \frac{2}{4} \times \frac{3}{6} =$$

$$14) \quad \frac{7}{9} \times \frac{3}{8} =$$

MULTIPLY FRACTIONS AND WHOLE NUMBERS

Remember: whole numbers have a denominator of 1

Ej) $\frac{1}{10} \times 9 =$

1) $\frac{2}{5} \times 9 =$

2) $9 \times \frac{3}{4} =$

$$\frac{1}{10} \times \frac{9}{1} = \frac{9}{10}$$

3) $10 \times \frac{8}{12} =$

4) $3 \times \frac{3}{8} =$

5) $8 \times \frac{7}{10} =$

6) $\frac{6}{8} \times 7 =$

7) $\frac{2}{8} \times 2 =$

8) $9 \times \frac{1}{3} =$

9) $\frac{1}{5} \times 6 =$

10) $\frac{3}{8} \times 8 =$

11) $\frac{1}{6} \times 10 =$

12) $\frac{1}{4} \times 10 =$

13) $2 \times \frac{2}{3} =$

14) $3 \times \frac{3}{4} =$

15) $8 \times \frac{1}{6} =$

16) $4 \times \frac{8}{10} =$

17) $\frac{7}{10} \times 6 =$

18) $\frac{5}{6} \times 2 =$

19) $4 \times \frac{2}{6} =$

20) $\frac{1}{3} \times 2 =$

MULTIPLY FRACTIONS AND WHOLE NUMBERS**Remember: whole numbers have a denominator of 1**

Ej) $\frac{1}{3} \times 3 =$

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

2) $\frac{8}{10} \times 5 =$

3) $\frac{1}{4} \times 10 =$

4) $\frac{3}{6} \times 5 =$

5) $6 \times \frac{4}{5} =$

6) $9 \times \frac{8}{12} =$

7) $\frac{3}{4} \times 5 =$

8) $7 \times \frac{1}{3} =$

9) $\frac{2}{4} \times 5 =$

10) $\frac{9}{10} \times 10 =$

11) $5 \times \frac{10}{12} =$

12) $7 \times \frac{3}{10} =$

13) $2 \times \frac{1}{10} =$

14) $5 \times \frac{2}{5} =$

15) $3 \times \frac{8}{10} =$

16) $2 \times \frac{4}{5} =$

17) $\frac{7}{8} \times 5 =$

18) $\frac{3}{6} \times 4 =$

19) $\frac{1}{12} \times 8 =$

20) $8 \times \frac{1}{8} =$



Resuelve cada problema. Responde como una fracción mixta.

Ej) $\frac{1}{10} \times 9 = \frac{9}{10}$
 $\frac{1}{10} \times \frac{9}{1} = \frac{9}{10}$

1) $\frac{2}{5} \times 9 =$

2) $9 \times \frac{3}{4} =$

3) $10 \times \frac{8}{12} =$

4) $3 \times \frac{3}{8} =$

5) $8 \times \frac{7}{10} =$

6) $\frac{6}{8} \times 7 =$

7) $\frac{2}{8} \times 2 =$

8) $9 \times \frac{1}{3} =$

9) $\frac{1}{5} \times 6 =$

10) $\frac{3}{8} \times 8 =$

11) $\frac{1}{6} \times 10 =$

12) $\frac{1}{4} \times 10 =$

13) $2 \times \frac{2}{3} =$

14) $3 \times \frac{3}{4} =$

15) $8 \times \frac{1}{6} =$

16) $4 \times \frac{8}{10} =$

17) $\frac{7}{10} \times 6 =$

18) $\frac{5}{6} \times 2 =$

19) $4 \times \frac{2}{6} =$

20) $\frac{1}{3} \times 2 =$

Respuestas

- Ej. 9/10
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

Fractions of amounts Part B

Put these expressions into ascending order.

1. $\frac{1}{10}$ of 35 0.5×62 $\frac{1}{8}$ of 288

2. 0.1×28 $\frac{1}{8}$ of 20 0.3×8

3. $\frac{1}{7}$ of 168 2.5×20 $\frac{1}{5}$ of 100

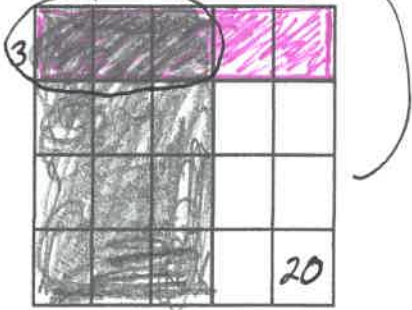
Copy these expressions out into your book and fill in the gaps.

4.	$\frac{1}{2}$ of 148	=	$\frac{1}{4}$ of
5.	$\frac{1}{8}$ of 600	=	$\frac{1}{3}$ of
6.	$\frac{1}{10}$ of	=	$\frac{1}{4}$ of 148
7.	$\frac{1}{5}$ of 140	=	— of 280
8.	— of 80	=	$\frac{1}{2}$ of 40

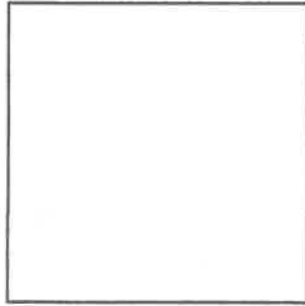
MULTIPLY FRACTIONS using the AREA MODE

Use the box provided to show a visual example of how to multiply 2 fractions

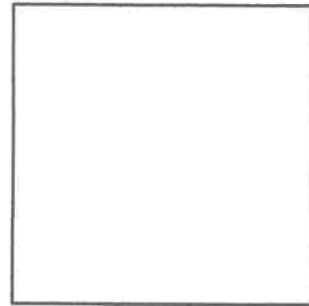
Ex) $\frac{3}{5} \times \frac{1}{4} = \frac{3}{20}$



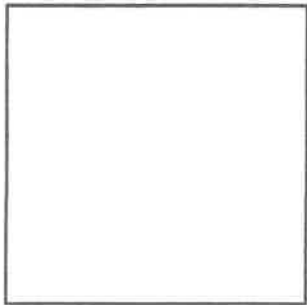
1) $\frac{7}{9} \times \frac{1}{4} =$



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



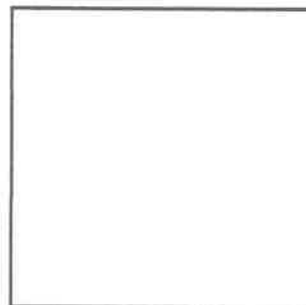
3) $\frac{5}{8} \times \frac{1}{4} =$



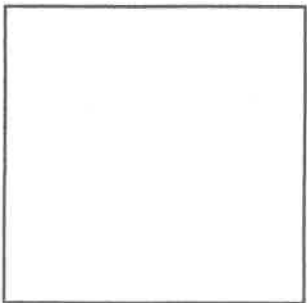
4) $\frac{1}{3} \times \frac{7}{8} =$



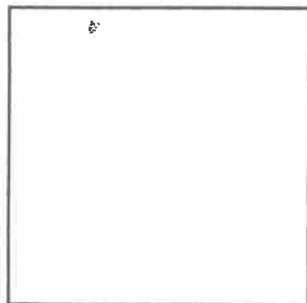
5) $\frac{5}{6} \times \frac{1}{3} =$



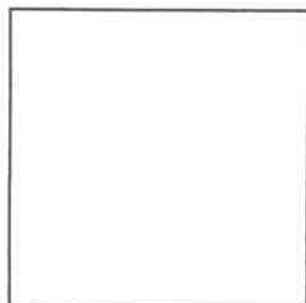
6) $\frac{1}{6} \times \frac{4}{8} =$



7) $\frac{6}{8} \times \frac{1}{7} =$



8) $\frac{4}{5} \times \frac{2}{5} =$



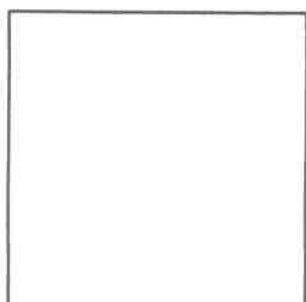
9) $\frac{7}{9} \times \frac{1}{8} =$



10) $\frac{1}{6} \times \frac{3}{6} =$



11) $\frac{2}{5} \times \frac{1}{2} =$



Ex. $\frac{3}{20}$

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

MULTIPLY FRACTIONS using the AREA MODE

Use the box provided to show a visual example of how to multiply 2 fractions

Ex) $\frac{1}{2} \times \frac{2}{5} =$

COLUMNS (handwritten label with arrow pointing to the vertical lines)

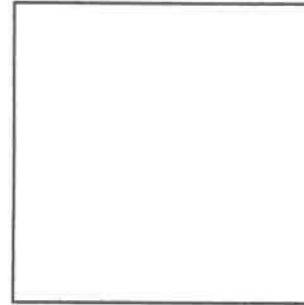
ROWS (handwritten label with arrow pointing to the horizontal lines)

Answer = $\frac{\text{Double-shaded}}{\text{Total \# Rectangles}}$

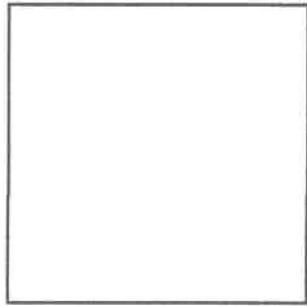
1) $\frac{2}{7} \times \frac{7}{8} =$



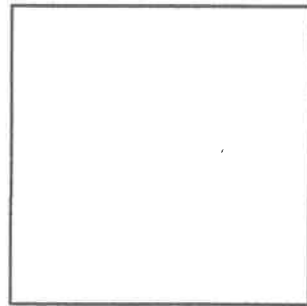
2) $\frac{3}{8} \times \frac{1}{4} =$



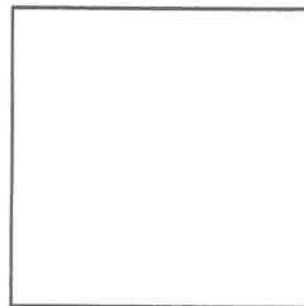
3) $\frac{4}{5} \times \frac{1}{4} =$



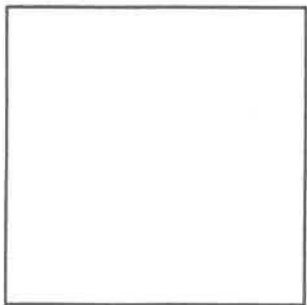
4) $\frac{2}{5} \times \frac{1}{3} =$



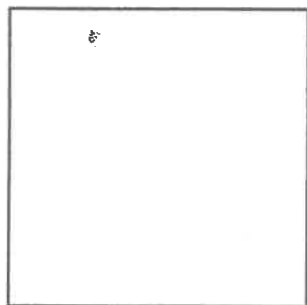
5) $\frac{2}{4} \times \frac{1}{2} =$



6) $\frac{2}{7} \times \frac{1}{6} =$



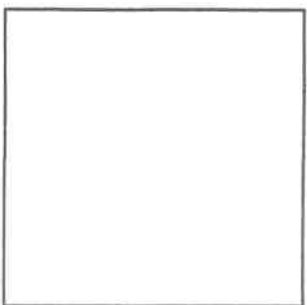
7) $\frac{3}{9} \times \frac{1}{4} =$



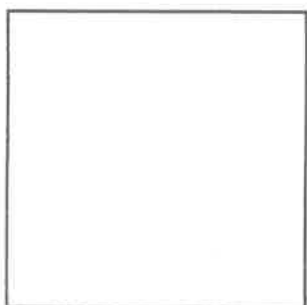
8) $\frac{1}{9} \times \frac{1}{2} =$



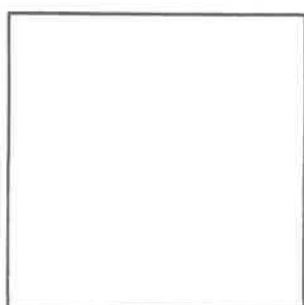
9) $\frac{4}{8} \times \frac{2}{9} =$



10) $\frac{1}{7} \times \frac{1}{5} =$



11) $\frac{3}{4} \times \frac{6}{9} =$



- Ex. $\frac{2}{10}$
1. _____
 2. _____
 3. _____
 4. _____
 5. _____
 6. _____
 7. _____
 8. _____
 9. _____
 10. _____
 11. _____

MULTIPLY FRACTIONS and MIXED NUMBERS

1. Convert all mixed numbers to fractions. 2. Multiply across

$$1\frac{1}{2} \times 2\frac{2}{5} = 3\frac{3}{10}$$

$$\downarrow \quad \downarrow \quad \uparrow$$

$$\frac{3}{2} \times \frac{11}{5} = \frac{33}{10}$$

Do the multiplication as Improper Fractions

$$1) \quad 2\frac{1}{4} \times 2\frac{1}{2} =$$

$$2) \quad 3\frac{2}{5} \times 4\frac{1}{3} =$$

$$3) \quad 2\frac{2}{5} \times 2\frac{1}{4} =$$

$$4) \quad 3\frac{1}{2} \times 2\frac{3}{5} =$$

$$5) \quad 4\frac{1}{3} \times 2\frac{1}{2} =$$

$$6) \quad 2\frac{1}{4} \times 4\frac{1}{2} =$$

$$7) \quad 3\frac{1}{3} \times 2\frac{1}{10} =$$

$$8) \quad 3\frac{1}{2} \times 3\frac{3}{4} =$$

MULTIPLY FRACTIONS and MIXED NUMBERS

1. Convert all mixed numbers to fractions. 2. Multiply across

Multiply these fractions together. Your answer can be left as an improper fraction and does not need to be in simplest form.

$$1) \quad 1\frac{2}{3} \times \frac{1}{2} = \frac{\quad}{3} \times \frac{1}{2} = \frac{\quad}{6} \quad 2) \quad 4\frac{1}{4} \times \frac{2}{3} = \frac{\quad}{4} \times \frac{\quad}{3} = \frac{\quad}{12}$$

$$3) \quad 3\frac{1}{5} \times 4 = \frac{\quad}{5} \times 4 = \frac{\quad}{5} \quad 4) \quad 2\frac{1}{6} \times \frac{3}{5} = \frac{\quad}{6} \times \frac{\quad}{5} = \frac{\quad}{30}$$

$$5) \quad 2\frac{2}{7} \times \frac{2}{3} = \frac{\quad}{7} \times \frac{\quad}{3} = \frac{\quad}{\quad} \quad 6) \quad 4\frac{1}{2} \times \frac{5}{8} = \frac{\quad}{2} \times \frac{\quad}{8} = \frac{\quad}{\quad}$$

$$7) \quad 5\frac{1}{4} \times \frac{4}{7} = \frac{\quad}{4} \times \frac{\quad}{7} = \frac{\quad}{\quad} \quad 8) \quad 3\frac{4}{5} \times 2 = \frac{\quad}{5} \times 2 = \frac{\quad}{\quad}$$

$$9) \quad \frac{3}{10} \times 2\frac{1}{6} = \frac{\quad}{10} \times \frac{\quad}{6} = \frac{\quad}{\quad} \quad 10) \quad 2\frac{3}{8} \times \frac{2}{7} = \frac{\quad}{8} \times \frac{\quad}{7} = \frac{\quad}{\quad}$$

$$11) \quad 1\frac{1}{3} \times 2\frac{1}{2} = \frac{\quad}{3} \times \frac{\quad}{2} = \frac{\quad}{\quad} \quad 12) \quad 2\frac{1}{4} \times 1\frac{3}{5} = \frac{\quad}{4} \times \frac{\quad}{5} = \frac{\quad}{\quad}$$

REVIEW - MULTIPLY

1. $1 \times \frac{4}{5} \times \frac{5}{6}$

5. $\frac{15}{4} \times \frac{7}{6} \times 1$

2. $1 \times \frac{5}{12} \times \frac{8}{5}$

6. $\frac{9}{2} \times \frac{4}{3} \times \frac{8}{3}$

3. $\frac{5}{4} \times \frac{1}{2} \times 4$

7. $\frac{3}{7} \times \frac{3}{4} \times 2$

4. $\frac{5}{8} \times \frac{2}{3} \times \frac{7}{3}$

8. $1 \times \frac{12}{5} \times \frac{7}{12}$

REVIEW - MULTIPLICATION 2

1. $\frac{2}{3} \times 3\frac{1}{4} \times \frac{3}{5}$

5. $\frac{2}{3} \times \frac{21}{8} \times \frac{4}{3}$

2. $3\frac{1}{3} \times \frac{1}{4} \times \frac{5}{2}$

6. $\frac{5^3}{12^3} \times \frac{6}{5} \times 1\frac{1}{8}$

3. $\frac{3}{2} \times \frac{4}{11} \times \frac{1}{4}$

7. $1\frac{3}{5} \times \frac{5}{12} \times \frac{3}{2}$

4. $\frac{1}{6} \times \frac{1}{2} \times 3\frac{2}{3}$

8. $\frac{3}{10} \times \frac{5}{12} \times \frac{3}{2}$

REVIEW - MULTIPLICATION 3

1. $11 \times \frac{5}{8}$

5. $1 \times \frac{5}{12}$

9. $\frac{5}{6} \times \frac{1}{3}$

2. $\frac{5}{2} \times \frac{16}{5}$

6. $\frac{3}{2} \times \frac{23}{3}$

10. $\frac{15}{8} \times \frac{5}{6}$

3. $\frac{1}{3} \times \frac{14}{11}$

7. $7 \times \frac{1}{8}$

11. $\frac{5}{3} \times 1$

4. $\frac{19}{3} \times \frac{9}{10}$

8. $\frac{8}{5} \times 3$

12. $\frac{9}{2} \times \frac{7}{4}$

REVIEW - MULTIPLICATION 4

1. $2\frac{1}{3} \times \frac{1}{4}$

5. $\frac{9}{5} \times \frac{1}{2}$

9. $\frac{3}{11} \times 9\frac{1}{2}$

2. $\frac{3}{8} \times 3\frac{1}{2}$

6. $\frac{17}{10} \times \frac{1}{3}$

10. $7\frac{1}{3} \times \frac{1}{3}$

3. $\frac{3}{2} \times \frac{14}{3}$

7. $\frac{1}{4} \times \frac{22}{9}$

11. $2\frac{2}{9} \times \frac{19}{10}$

4. $\frac{8}{11} \times \frac{19}{8}$

8. $\frac{5}{4} \times \frac{13}{10}$

12. $\frac{1}{3} \times \frac{23}{11}$