Name: _____ Completion Date: _____

Math Summer Assignment: Grade 6 Mathematics

- All work should be done directly on this packet. If you need more space to show your work, please use a separate sheet of paper labeling the problem number/letter. Then attach the extra sheets to the back of this packet.

- Every answer should be **circled**.

- Show all of your work. **NO CALCULATORS** may be used when working through this packet.

- You may use your notes from your previous year as well as any educational resource on the internet such as Khan Academy or worksheetworks.com.

- Working with a tutor or a family member on these exact problems is **NOT** permitted. You may ask someone how to solve a similar problem or have someone create practice problems for you.

- This assignment will be collected at the beginning of our first math meeting and will be graded.

- Note: there may be some problems that contain content you have not seen. If this is the case, do your best, make notes, and write down your questions. This may be particularly true at the end of the packet. Examples with step-by-step instructions have been added to help focus your thinking.

Good luck, take risks, and have fun exercising your math brain! ☺

Some helpful information that will be important next year.

Place Value

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones	Decimal	Tenths	Hundredths	Thousandths	Ten Thoudandths	Hundred Thousandths	Millionths
8	7	9	7	4	8	6	.	3	4	9	5	7	6

Rounding 3.235 to the hundredths place.

(The underlined number represents the place value we are rounding.)

1st) When we round decimals, we look at the number to the right of the place value that we are rounding to and circle that number.

Ones	Decimal	Tenths	Hundredths	Thousandths
3	.	2	3	(5)

2nd) When the circled number is 5 or higher we round the underlined number up by one. In this case the three becomes a four.

3.235 rounded to the nearest Hundredth.

3.24

1) Round to the following place values.

A) Round 4.923 to the tenths place.

B) Round 5.098 to the ones place.

C) Round 67.89 to the tens place.

D) Round 152.567 to the hundredths place.

E) Round 0.0096 to the thousandths place.

F) Round 0.0709 to the hundredths place.

Round to the Underlined Place Value

G) 0.92

H) 9.999

I) 6.9512

J) 15.096

2) Use the Order of Operations (PEMDAS or GEMDAS) to answer the following questions. (Review & 6th Grade Topic)

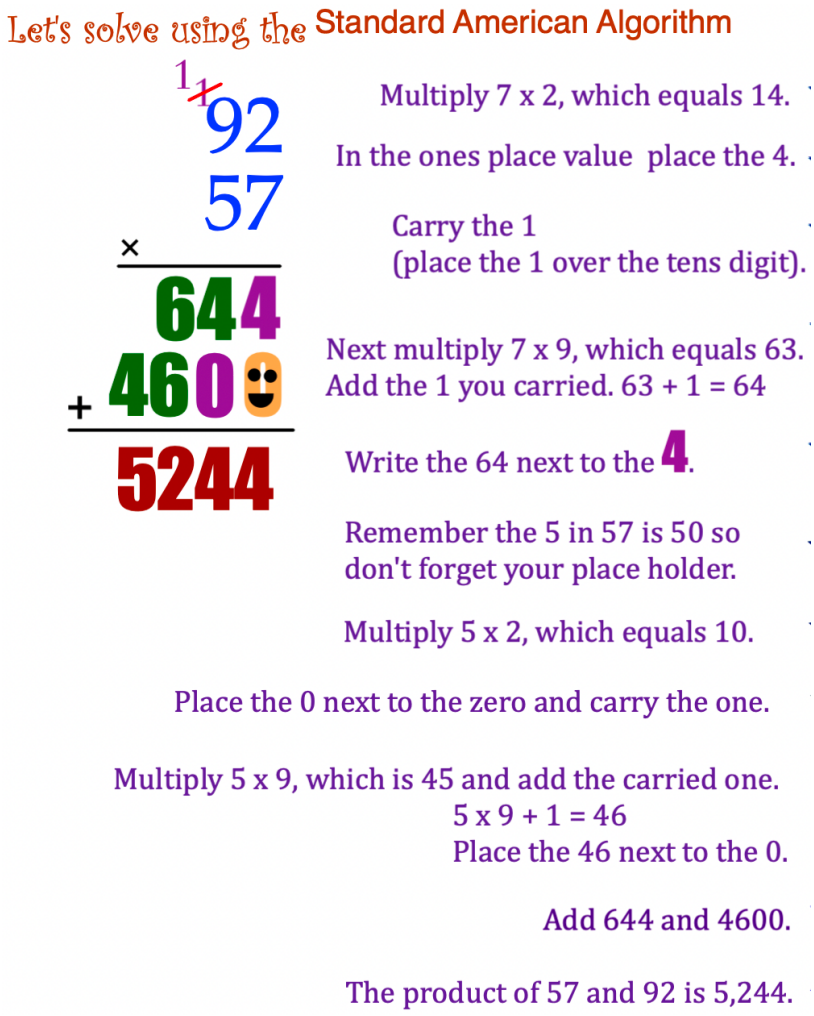
A) $64 \div 8 \times 5$

B) $(5 + 4) \times 9 - 11$

C) $5^2 + 8 \times 5$

D) $(3 \times 8 - 4) \div 4 \times 5$

3) Multiplying Whole Numbers. This is the expected method in the 6th grade.



Find each product.

A) 729 x 8 =

B) 876 x 90 =

C) 57 x 78 =

D) 264 x 68 =

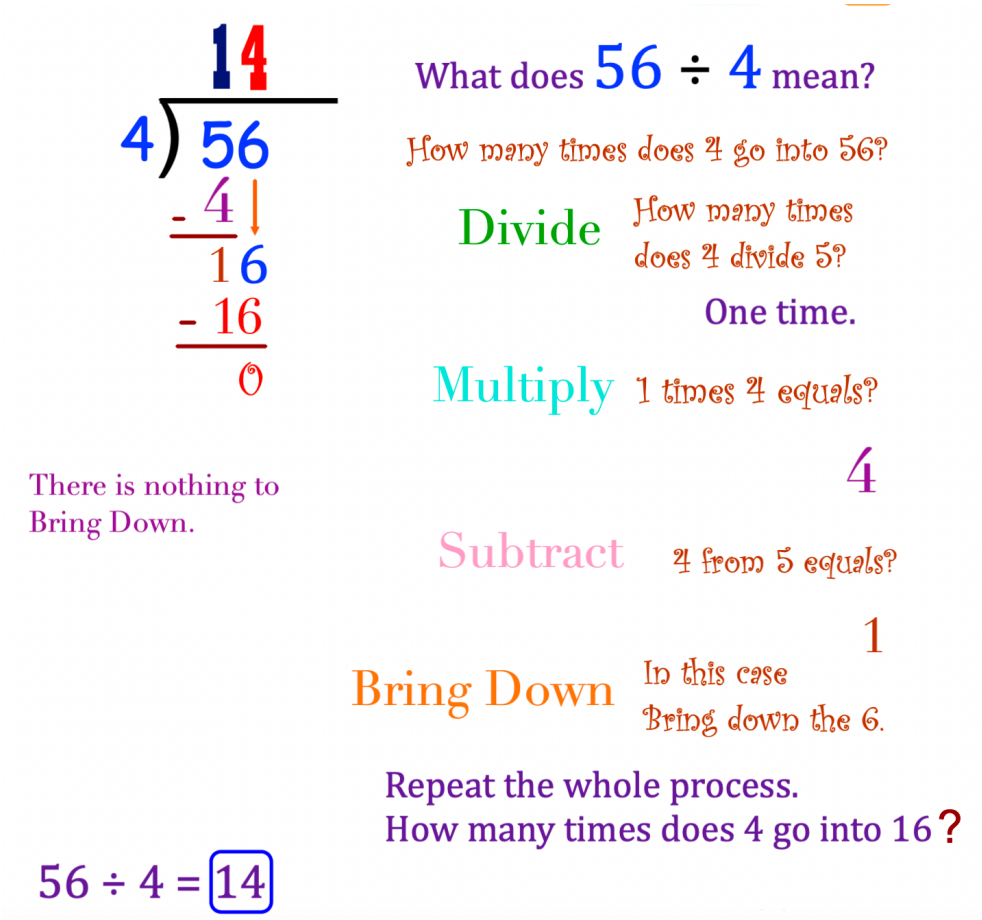
E) 98 x 67 =

F) 345 x 908 =

G) 453 x 567 =

H) 689 x 428 =

4) Dividing Whole Numbers using Standard American Algorithm. This is the expected method in the 6th grade.



Find each quotient.

A) 714 ÷ 7 =

B) 472 ÷ 8 =

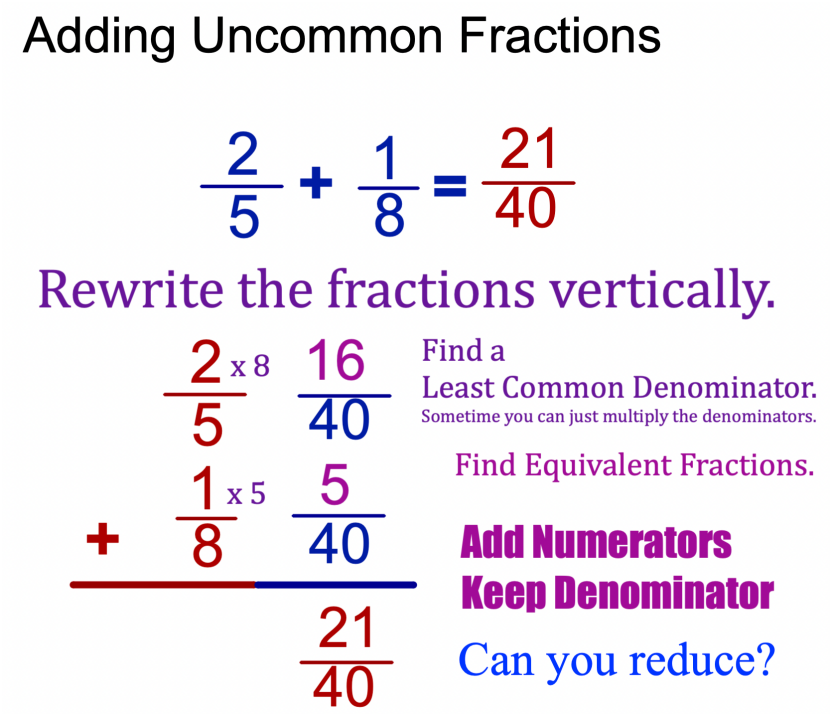
C) 7038 ÷ 9 =

D) 6972 ÷ 12 =

E) 7035 ÷ 15 =

F) 10625 ÷ 25 =

5) Adding Fractions



Solve: Reduce your answers.

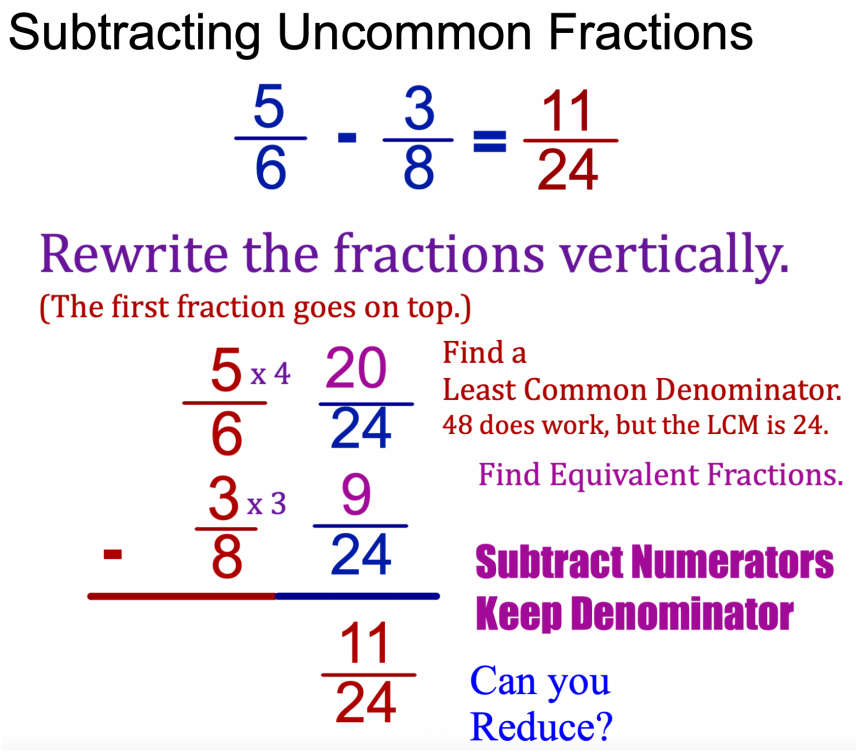
A) $\frac{2}{8} + \frac{4}{8} =$

B) $\frac{3}{10} + \frac{1}{2} =$

C) $\frac{1}{6} + \frac{17}{24} =$

D) $\frac{8}{15} + \frac{1}{6} =$

6) Subtracting Fractions



Solve: Reduce your answers.

A) $\frac{4}{12} - \frac{2}{12} =$

B) $\frac{4}{5} - \frac{2}{15} =$

C) $\frac{3}{10} - \frac{2}{15} =$

D) $\frac{1}{6} - \frac{1}{15} =$

7) Adding Mixed Numbers

Let's add these Mixed Numbers together.

$$4\frac{1}{2} + 2\frac{6}{10} =$$

$$4\frac{1}{2}^{\times 5} \quad \frac{5}{10}$$

$$+\ 2\frac{6}{10} \quad \frac{6}{10}$$

$$6 \quad \frac{11}{10}$$

What is the Least Common Denominator?

Sometimes it's one of the denominators.

What are the Equivalent Fractions?

Add the Numbers & Add the Fractions

$$6 + 1\frac{1}{10} = 7\frac{1}{10}$$

Solve: Reduce your answers. Write your answers as a mixed number or as a proper fraction.

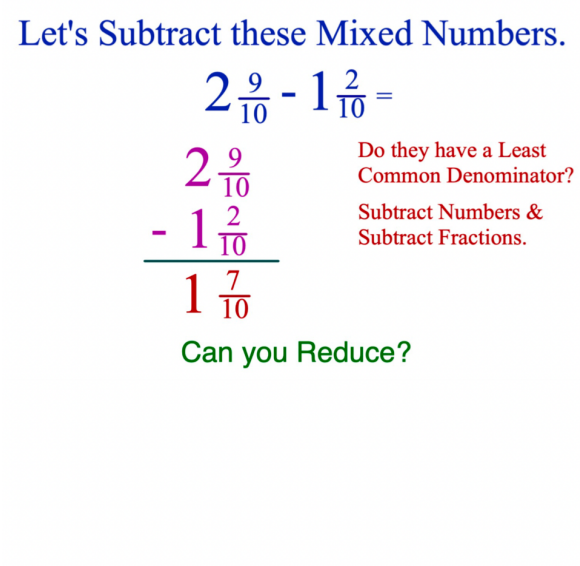
A) $2\frac{6}{10} + 3\frac{2}{10}$

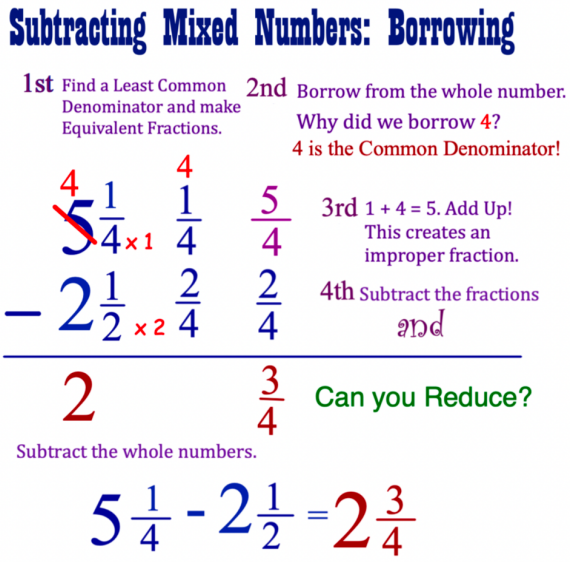
B) $\frac{1}{24} + 4\frac{7}{8}$

C) $6\frac{1}{10} + 5\frac{1}{2}$

D) $4\frac{2}{15} + 7\frac{7}{10}$

8) Subtracting Mixed Numbers (Review & 6th Grade Topic)





Solve: Reduce your answers. Write your answers as a mixed number or as a proper fraction.

A) $7\frac{4}{8} - 3\frac{2}{8}$

B) $7\frac{7}{20} - 3\frac{1}{4}$

C) $6\frac{1}{6} - 4\frac{1}{15}$

D) $4\frac{2}{9} - 3\frac{8}{9}$

9) Multiplying Fractions

Multiplying Fractions

$$\frac{3}{4} \cdot \frac{1}{2} = \frac{3 \cdot 1 = 3}{4 \cdot 2 = 8} = \frac{3}{8}$$

First: Multiply across the top and the bottom of your fractions.

Second: If you can, reduce your the fraction.

Multiplying Fractions: Canceling

$$\frac{7}{\cancel{8}^{2}\ \div 4} \cdot \frac{\cancel{4}^{1}\ \div 4}{5} = \frac{7 \cdot 1}{2 \cdot 5} = \frac{7}{10}$$

First: Reduce or Cancel the fractions. To Cancel: reduce across the multiplication sign over the top and bottom.

Second: Multiply across the top and the bottom of your fractions.

Third: If you can, turn your fraction into a mixed number, and always make sure your fraction is reduced.

Multiplying Fractions: Reducing

$$\frac{\cancel{5}^{1}\ \div 5}{\cancel{15}^{3}\ \div 5} \cdot \frac{\cancel{4}^{2}\ \div 2}{\cancel{6}^{3}\ \div 2} = \frac{1 \cdot 2}{3 \cdot 3} = \frac{2}{9}$$

First: Reduce or Cancel the fractions. To Cancel: reduce across the multiplication sign over the top and bottom.

Second: Multiply across the top and the bottom of your fractions.

Third: If you can, turn your fraction into a mixed number, and always make sure your fraction is reduced.

Multiplying Fractions: Canceling & Reducing

$$\frac{\cancel{5}^{1}\ \div 5}{\cancel{15}^{3}\ \div 5} \cdot \frac{\cancel{9}^{3}\ \div 3}{13} = \frac{1 \cdot 3}{1 \cdot 13} = \frac{3}{13}$$

First: Reduce or Cancel the fractions. To Cancel: reduce across the multiplication sign over the top and bottom.

Second: Multiply across the top and the bottom of your fractions.

Third: If you can, turn your fraction into a mixed number, and always make sure your fraction is reduced.

Solve: Reduce your answers. Write your answers as a mixed number or as a proper fraction.

A) $\frac{2}{3} \times \frac{8}{11} =$

B) $\frac{3}{4} \times \frac{8}{11} =$

C) $\frac{5}{6} \times \frac{2}{3} =$

D) $\frac{3}{4} \times \frac{8}{9} =$

10) Dividing Fractions (Review & 6th Grade Topic)

Dividing Fractions

$\frac{2}{5} \div \frac{1}{4} =$

Keep Change Flip

First: ★ You never divide fractions you only multiply them.

Second: Reduce or cancel your fractions.

$\frac{2}{5} \cdot \frac{4}{1} = \frac{2 \cdot 4 = 8}{5 \cdot 1 = 5} = 1\frac{3}{5}$

Third: Multiply across the top and bottom of your fractions.

Fourth: If you can, turn your fraction into a mixed number and always reduce your fraction.

Division Fractions: Canceling

$\frac{11}{12} \div \frac{5}{9} =$

Keep Change Flip

First: ★ You never divide fractions you only multiply them.

$\frac{11}{12 \div 3} \cdot \frac{9 \div 3}{5} = \frac{11 \cdot 3}{4 \cdot 5} = \frac{33}{20}$

Second: ★ ★ ★ Reduce or Cancel the fractions. To Cancel: reduce across the multiplication sign over the top and bottom.

Third: Multiply across the top and the bottom of your fractions.

Fourth: If you can, turn your fraction into a mixed number, and always make sure your fraction is reduced. $\frac{33}{20} = 1\frac{13}{20}$

Solve: Reduce your answers. Write your answers as a mixed number or as a proper fraction.

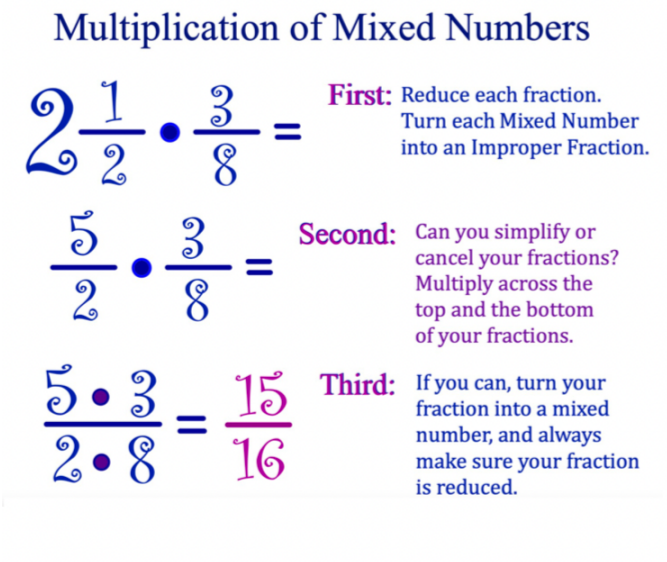
A) $\frac{3}{5} \div \frac{7}{8} =$

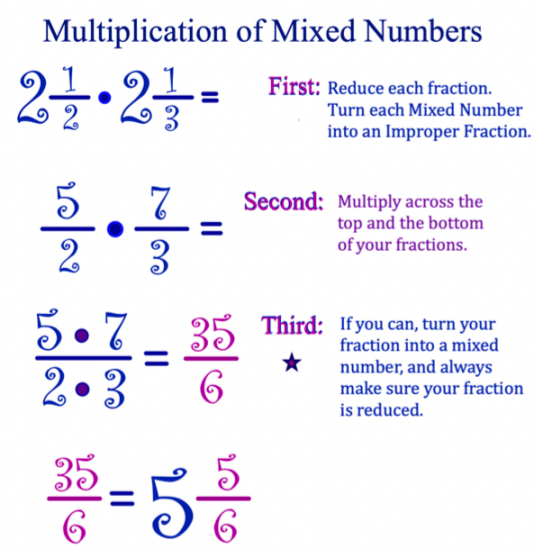
B) $\frac{5}{6} \div \frac{1}{5} =$

C) $\frac{2}{3} \div 2 =$

D) $\frac{3}{4} \div \frac{5}{6} =$

11) Multiplying Mixed Numbers (Review & 6th Grade Topic)





Solve: Reduce your answers. Write your answers as a mixed number or as a proper fraction.

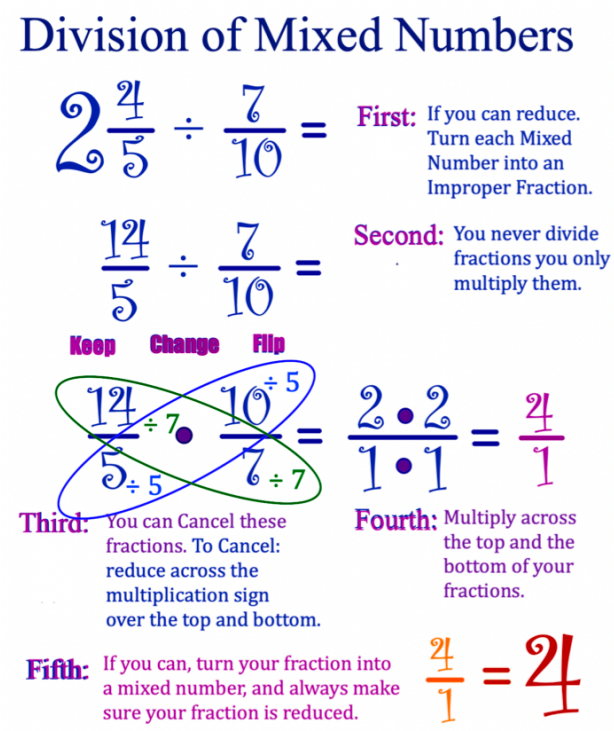
A) $\frac{2}{3} \times 2\frac{3}{4} =$

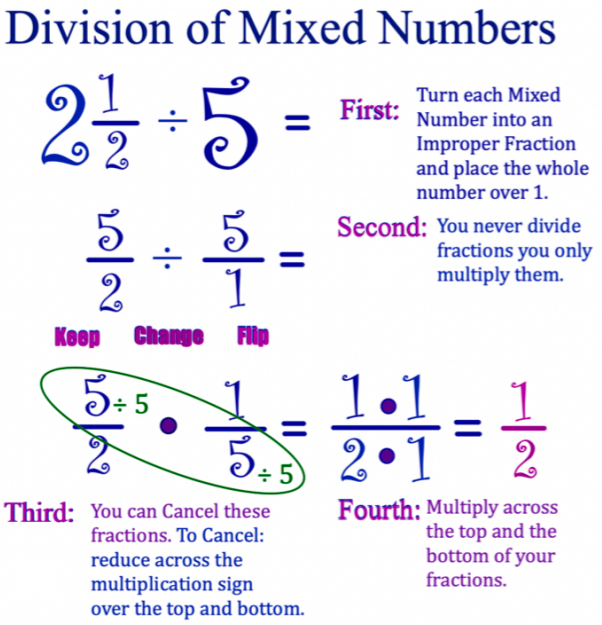
B) $2\frac{2}{11} \times 2\frac{1}{4} =$

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

D) $1\frac{3}{5} \times 4\frac{13}{18} =$

12) Dividing Mixed Numbers (6th Grade Topic)





Solve: Reduce your answers. Write your answers as a mixed number or as a proper fraction.

A) $4\frac{1}{6} \div \frac{3}{4} =$

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

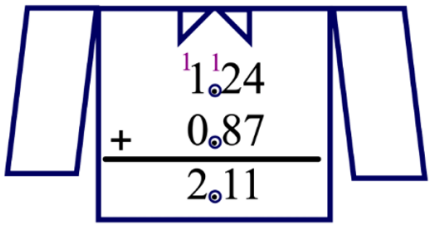
C) $1\frac{5}{6} \div 3\frac{9}{10} =$

D) $3\frac{1}{15} \div 3\frac{5}{6} =$

13) Adding Decimals

When Adding Decimals, you want to line up the decimals by their place value or like buttons on a shirt, then add normally.

$1.24 + 0.87 = 2.11$



Find each sum.

A) 75.4 + 3.5 =

B) 37.92 + 3.47 =

C) 25.09 + 4.08 =

D) 32.8 + 7.37 =

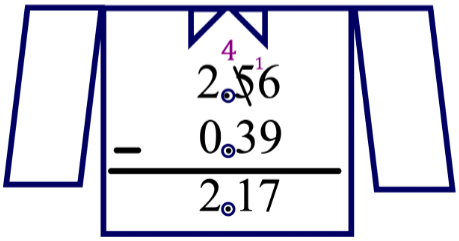
E) 23.9 + 0.2459 =

F) 9.805 + 7.796 =

14) Subtracting Decimals (Review & 6th Grade Topic)

When Subtracting Decimals, you want to line up the decimals by their place value or like buttons on a shirt, then subtract normally.

$2.56 - 0.39 = 2.17$



Find each difference.

A) 17.5 – 2.4 =

B) 92.6 – 12.7 =

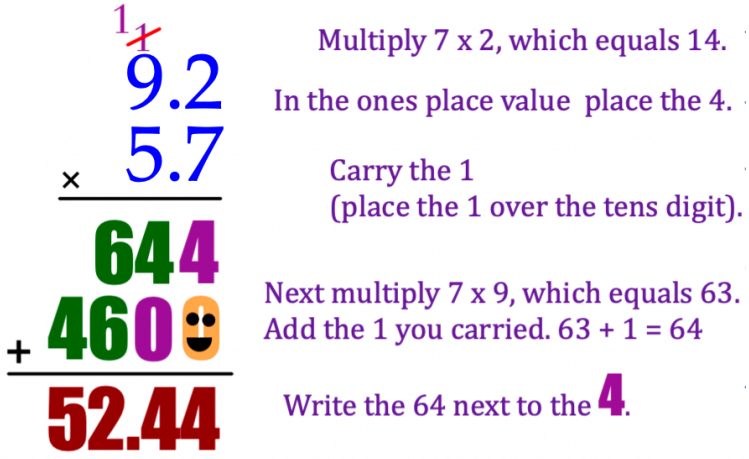
C) 12.47 – 9.2 =

D) 72 – 16.57 =

E) 34.01 – 3.598 =

F) 45 – 9.082 =

15) Multiplying Decimals using Standard American Algorithm. This is the expected method in 6th grade. (6th Grade Topic)



Multiply 7 x 2, which equals 14.

In the ones place value place the 4.

Carry the 1
(place the 1 over the tens digit).

Next multiply 7 x 9, which equals 63.
Add the 1 you carried. 63 + 1 = 64

Write the 64 next to the 4.

Remember the 5 in 57 is 50 so
don't forget your place holder.

Multiply 5 x 2, which equals 10.

Place the 0 next to the zero and carry the one.

Multiply 5 x 9, which is 45 and add the carried one.
5 x 9 + 1 = 46
Place the 46 next to the 0.

Add 644 and 4600.

The product of 5.7 and 9.2 is 52.44.

How do we know that is where the decimal goes?
What is the product of 9 x 6? Does that help?

Find each product.

A) 3.7 x 4.5 =

B) 53.9 x 5.8 =

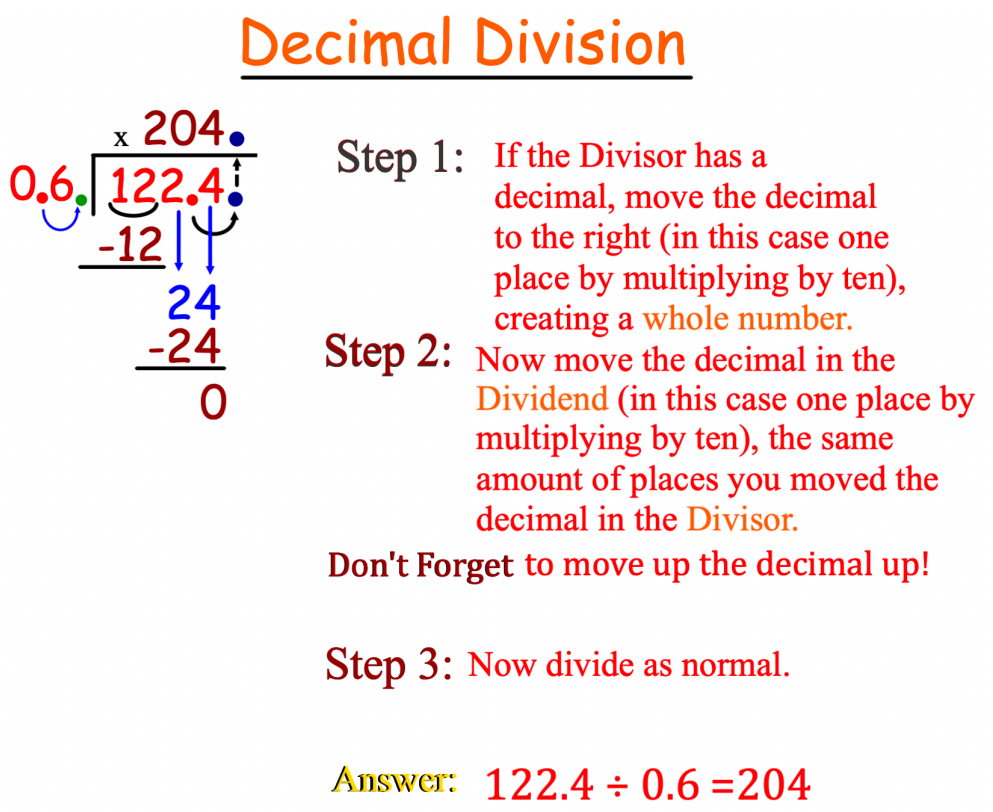
C) 2.85 x 3.7 =

D) 72.4 x 0.56

E) 24.67 x 7.58 =

F) 2.325 x 5.504 =

16) Dividing Decimals using Standard American Algorithm. This is the expected method in 6th grade. (6th Grade Topic)



Find each quotient.

A) 5.1295 ÷ 5 =

B) 5.1295 ÷ 0.5 =

17) Fill in the missing numbers so that the sum of each row, column, and diagonal is the same. *Don't use any number more than once in each square.*

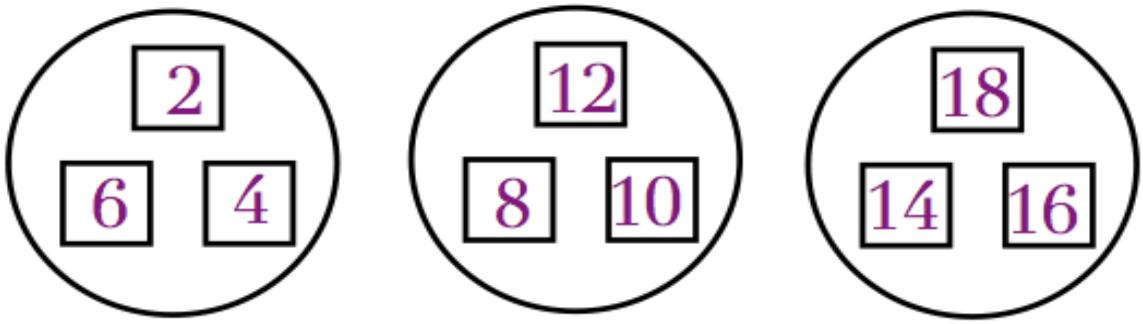
A. Fill in the numbers 1 through 9 to get a sum of 15.

1	5	
		2

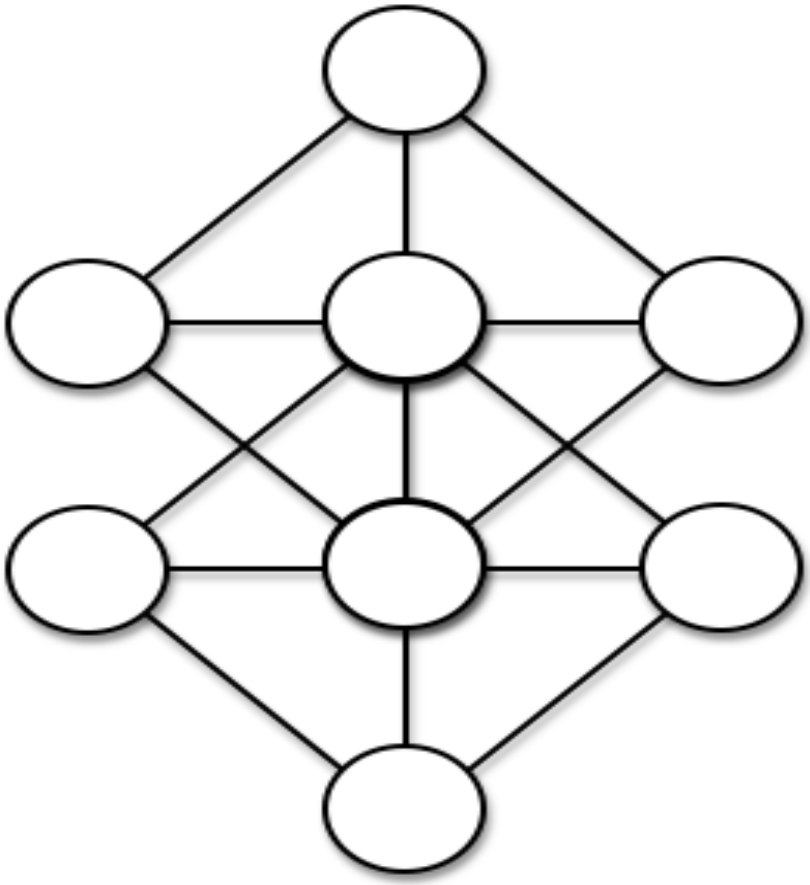
B. Use the numbers 1 through 16 to get a sum of 34.

	3	2	
5			8
9		7	
4			1

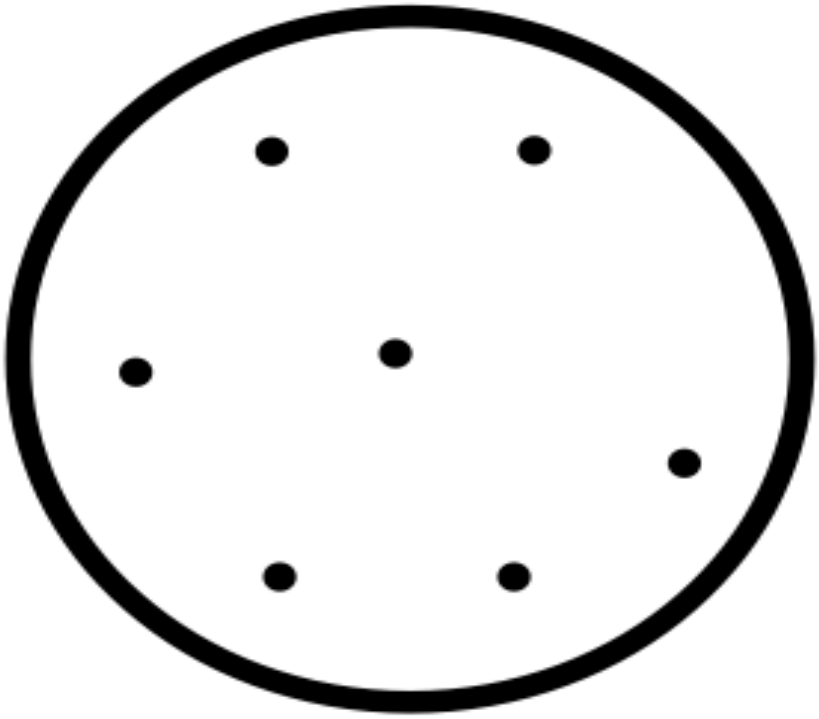
18) Can you even up the weights in these three circles? Just move one block to another circle so the sums in each circle are the same. (You can only move one weight)



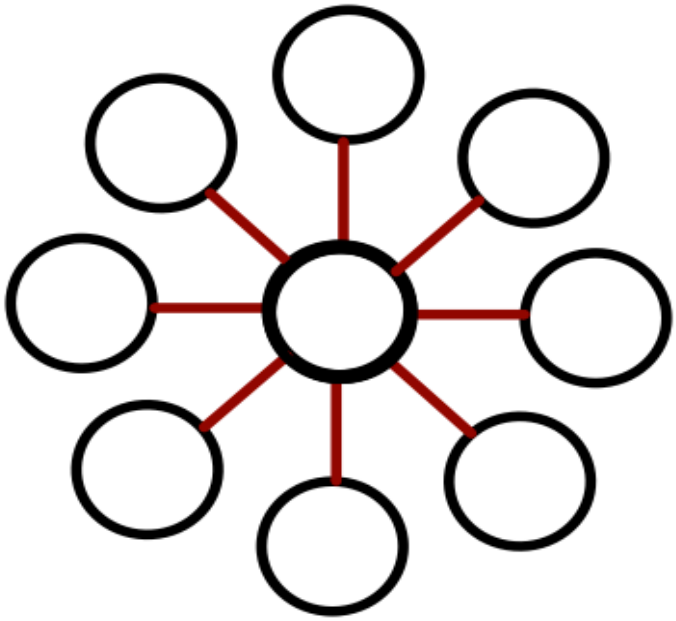
19) Use the digits 1 through 8 to fill in the circles below. Make sure no line connects consecutive numbers. That means 3 can't join 2 or 4; 6 can't join 5 or 7; and so on.



20) Now see if you can separate each dot in the circle by drawing only three straight lines.



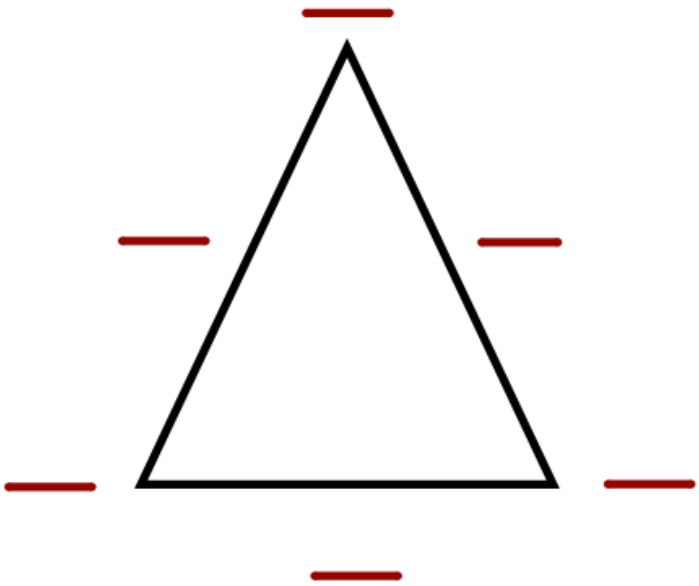
21) Use the numbers 4 through 12. Fill in the circles so that the numbers on each straight line add up to 21. Use each number only once.



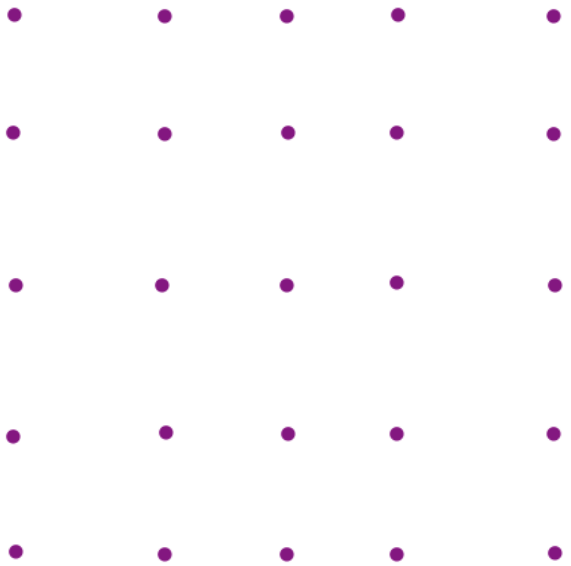
23) In the multiplication problem below, A and B stand for different digits. What numbers to A and B represent?

$$\begin{array}{r} A\ B \\ \times\ B\ A \\ \hline 114 \\ +\ 3040 \\ \hline 3154 \end{array}$$

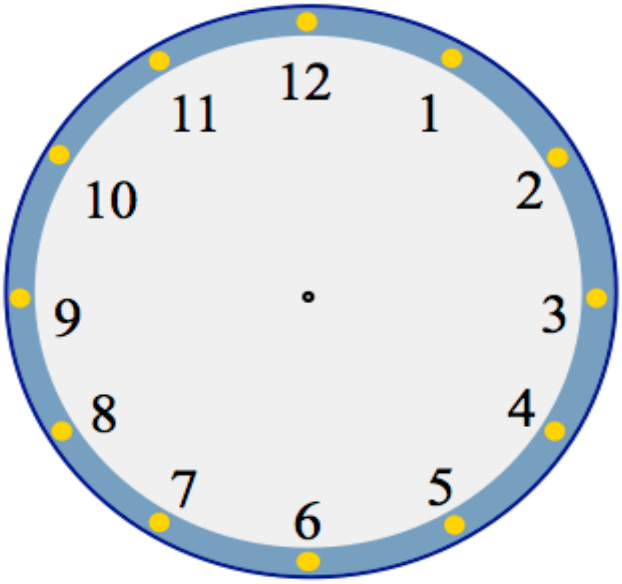
24) Magic Triangles work a lot like magic squares. The sum of the numbers along each of the three sides of the triangle should be the same. Use the numbers 4 to 9 to solve this magic triangle. The sum of each side should be 20. Only use each number once.



25) Use the grid below to draw a square. Connect 8 dots – no more, no less. Your drawing should trap 5 dots inside the square and put 12 dots outside the square.



26) Use two straight lines to divide this clock into three parts, so that the numbers in each of the parts add up to the same sum.



27) Suppose today is Tuesday. What day of the week will it be 100 days from now?

Challenging Singapore Word Problems

28) A flight attendant flew 25 flights in a week. 12 of the flights were from New York to Houston. The remaining flight were from Houston to Miami. She flew 4,460 miles more from New York to Houston than from Houston to Miami. It is 964 flight miles from Houston to Miami. Find the flight distance she flew from New York to Houston.

29) Ian measures the mass of his cat and its kitten. The mass of the kitten is $6\frac{1}{5}$ pounds. The kitten is $3\frac{7}{8}$ pounds lighter than the cat. What is the total mass of the cat and kitten?

30) Abigail brought a bottle of water for her basketball practice. She drank $1\frac{1}{5}$ liters of water during practice. She filled up the bottle with $\frac{5}{8}$ liter of water after practice. Her bottle then contained $1\frac{3}{4}$ liters of water. How much water was there in Abigail's bottle at first?

31) David bought 3 books that cost $8.80 each. He also bought a box of cookies that cost $2.95 less that a book. He paid using a $50 bill. How much change did he receive?

32) Kelly had $50 at first. She bought 3 books that cost $8.80 each. With the rest of her money, she bought 4 boxes of cookies. How much did each box of cookies cost?