

## Indicators

### Objective:

**1.02 Develop fluency in addition, subtraction, multiplication, and division of rational numbers.**

- a) Analyze computational strategies.
- b) Describe the effect of operations on size.
- c) Estimate the results of computations.
- d) Judge the reasonableness of solutions.

### Vocabulary and Resources

integers	repeating decimal	least common multiple
rational numbers	inverses/opposites	greatest common factor
proper fraction	reciprocal	prime number
improper fraction	inverse operations	composite number
mixed number	factors	prime factorization
terminating decimal	multiples	

**A.** A bottle has a mass of 1.5 kg when it is one-third full of syrup and a mass of 2.5 kg when it is two-thirds full of syrup. What is the mass of the empty bottle?

**B.** Marianne spent two-fifths of her salary on a scarf and a hat. The hat costs three times as much as the scarf. If she has \$36.00 left, how much did the scarf cost.

**C.** Sammy started a new exercise program that requires him to run 10 miles a week. On Monday he ran  $2\frac{1}{2}$  miles and on Tuesday he ran  $1\frac{3}{4}$  miles. If he chooses not to run on Wednesday or Thursday, can he reach his goal if runs 2 miles on each of the remaining days of the week?

**D.** At the Wholesale Club a family bought a package of 14 individual pan pizzas for \$29.96. Dean, the oldest child, ate three pizzas. Mom, Dad, Julie, Brian, and Jennifer each ate two pizzas and Chris ate one pizza. How much does it cost to feed Dean and Chris?

**E.** John received a letter from a pen pal who mentioned that the weather had turned quite cold and the average low temperature reading for the week was  $-20^{\circ}$  Celsius. Using the formula  $F = \frac{9}{5} C + 32$ , find the equivalent Fahrenheit reading.

**F.** Reba has invested money in some stock and keeps track of the loss or gain per share on a daily basis. On Friday of last week, the value of a share of the stock was \$36.71 when the stock exchange closed for the day. If the net change for Wednesday was  $-0.15$ , for Thursday  $+1.23$ , and for Friday  $-0.03$ , what was the value of a share of the stock when the stock exchange closed last Tuesday?

**G.** Mr. Jacobs gets a monthly statement on his investments from his financial adviser. The change in the value of his investments for the last six months was:  $+\$327.50$ ,  $+\$98.85$ ,  $-\$63.77$ ,  $-\$38.23$ ,  $+\$22.97$ . Estimate the net change over the last six months.

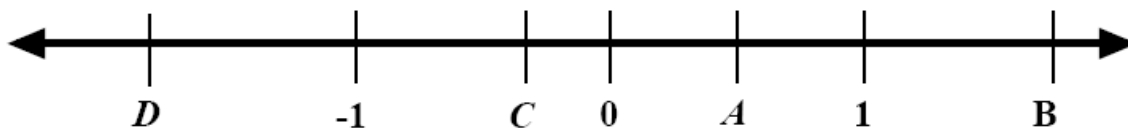
**H.** Katie was helping her sister Julie with her homework. Julie wanted to rename the number  $-2\frac{3}{8}$  as an improper fraction and said that it would be equivalent to  $-\frac{13}{8}$ . What mistake did Julie make? Explain how Julie could correctly rename the number as an improper fraction.

**I.** Caitlyn's family drove 329.44 miles. Caitlyn determined that the car averaged 28.4 miles per gallon of gasoline. About how many gallons of gasoline did the car use?

**J.** Shauna plans to place a border around the quilt she and her grandmother made together. The dimensions of the quilt are 8 ft by  $4\frac{1}{2}$  ft. If she purchases 8 yards of material for the border, will she have enough to cover all four sides? Justify your answer.

**K.** Mr. Patch baked cookies for the fair. He sold three-fifths of them to the soccer team and one-fourth of the rest to the cheerleaders. If he had 36 cookies left, how many did he bake?

**L.** The numbers 0, 1, -1,  $A$ ,  $B$ ,  $C$  and  $D$  are located on the number line below:



For each of the following, insert the symbol  $<$ ,  $>$ , or  $=$  to make a true statement.

- a.  $A$  \_\_\_\_\_  $B$       f.  $B + C$  \_\_\_\_\_  $0$       k.  $C \cdot C$  \_\_\_\_\_  $0$   
 b.  $C - D$  \_\_\_\_\_  $1$       g.  $A + (-A)$  \_\_\_\_\_  $0$       l.  $C \cdot \frac{1}{C}$  \_\_\_\_\_  $1$   
 c.  $B + C$  \_\_\_\_\_  $0$       h.  $C \cdot A$  \_\_\_\_\_  $-1$       m.  $A \cdot B$  \_\_\_\_\_  $0$   
 d.  $C \cdot B$  \_\_\_\_\_  $0$       i.  $D + A$  \_\_\_\_\_  $0$       n.  $C - B$  \_\_\_\_\_  $0$   
 e.  $D + C$  \_\_\_\_\_  $0$       j.  $B - D$  \_\_\_\_\_  $0$

**M.** The recipe for a cake calls for two-thirds of a cup of oil, three and a half cups of flour and one cup of milk. The bowl Hal wants to use to mix the cake holds three quarts. Is it sufficient for the task? How do you know?

**N.** Examine each situation. Explain your reasoning.

- a) What number(s) greater than 0 can you multiply 3.2 by to make the product less than 3.2, greater than 3.2, or equal to 3.2? Justify your answers.  
 b) What number(s) less than 0 can you multiply  $\frac{1}{2}$  by to make the product less than  $\frac{1}{2}$ , greater than  $\frac{1}{2}$ , or equal to  $\frac{1}{2}$ ? Justify your answers.