

HiSET® - Quiz Questions with Answers

Mathematics

Mathematics

1.

Which option is closest to Bradley's height in inches if he measures 6' 3"?

75"

63"

92"

70"

Correct answer: 75"

Convert feet into inches.

1 foot/12 inches = 6 feet/x inches

x = 72 inches

Add 3 inches to 72 to get Bradley's total height.

3 + 72 = 75 inches, or 75"

2.

0.404 millimeters is equal to how many centimeters?

0.0404 centimeters

40.4 centimeters

4.04 centimeters

0.00404 centimeters

Correct answer: 0.0404 centimeters

One centimeter is equal to ten millimeters; therefore, 0.0404 centimeters is equal to 0.404 millimeters ($0.404/10 = 0.0404$).

3.

Find the sum of $\frac{3}{5}$ and the second lowest number in the following set of numbers:

$\frac{7}{9}$, $\frac{9}{11}$, $\frac{2}{3}$, $\frac{5}{7}$, $\frac{9}{13}$

1 $\frac{19}{65}$

1 $\frac{11}{35}$

1 $\frac{17}{45}$

1 $\frac{4}{15}$

Correct answer: 1 $\frac{19}{65}$

First, convert the numbers to decimals to determine the second lowest number.

$$7 \div 9 = 0.78$$

$$9 \div 11 = 0.82$$

$$2 \div 3 = 0.67$$

$$5 \div 7 = 0.71$$

$$9 \div 13 = 0.69$$

The second lowest number is 0.69, or $\frac{9}{13}$.

Add $\frac{3}{5}$ to $\frac{9}{13}$ by first finding a common denominator.

$$\frac{3}{5} + \frac{9}{13}$$

$$\left(\frac{3}{5}\right) \times \left(\frac{13}{13}\right) + \left(\frac{9}{13}\right) \times \left(\frac{5}{5}\right)$$

$$\frac{39}{65} + \frac{45}{65} = \frac{84}{65}, \text{ or } 1 \frac{19}{65}$$

4.

Solve the following by subtracting.

$$28 \frac{1}{2} - 12 \frac{1}{4}$$

16 $\frac{1}{4}$

16 $\frac{1}{2}$

16 $\frac{3}{4}$

16 $\frac{1}{8}$

Correct answer: 16 $\frac{1}{4}$

1. Convert 28 $\frac{1}{2}$ to improper fraction

Use this rule: $a \frac{b}{c} = \frac{ac+b}{c}$

$$\frac{(28 \times 2 + 1)}{2} - 12 \frac{1}{4}$$

2. Simplify 28×2 to 56

$$\frac{(56+1)}{2} - 12 \frac{1}{4}$$

3. Simplify 56+1 to 57

$$\frac{57}{2} - 12 \frac{1}{4}$$

4. Convert 12 $\frac{1}{4}$ to improper fraction

Use this rule: $a \frac{b}{c} = \frac{ac+b}{c}$

$$\frac{57}{2} - \frac{(12 \times 4 + 1)}{4}$$

5. Simplify 12×4 to 48

$$\frac{57}{2} - \frac{(48+1)}{4}$$

6. Simplify 48+1 to 49

$$\frac{57}{2} - \frac{49}{4}$$

7. Find the Least Common Denominator (LCD) of $\frac{57}{2}, \frac{49}{4}$

Method 1: By Listing Multiples List out all multiples of each denominator, and find the first common one.

2 : 2,4

4 : 4

Therefore, the LCD is 4

Method 2: By Prime Factors List all prime factors of each denominator, and find the union of these primes.

2 : 2

4 : 2,2

Therefore, the LCD is $2 \times 2 = 4$

8. Make the denominators the same as the LCD

$57 \times 2 / (2 \times 2) = 49/4$

9. Simplify - Denominators are now the same

$114/4 - 49/4$

10. Join the denominators

$(114 - 49)/4$

11. Simplify

$65/4$

12. Convert to mixed fraction

$16 \frac{1}{4}$

5.

Solve the equation:

$$4x - 5 = 15$$

$x = 5$

$x = 4$

$x = 6$

$x = 2$

Correct answer: $x = 5$

Solve the equation $4x - 5 = 15$

Add 5 on both sides of the equation.

$$4x - 5 + 5 = 15 + 5$$

$$4x = 20$$

$$x = 5$$

6.

A tank has a capacity of 25 cubic meters. Given that one thousand liters is equivalent to one cubic meter, what is the quantity of water in the tank in liters if the tank is half full?

12,500 liters

16,667 liters

6,000 liters

25,000 liters

Correct answer: 12,500 liters

1 cubic meter = 1,000 liters

25 cubic meters = 1,000 × 25 = 25,000 liters

Since the tank is half full, the quantity of the water in the tank is:

25,000 liters ÷ 2 = 12,500 liters

7.

Place the following list of numbers in order, from least to greatest.

1.67, $-3/8$, $5/2$, -0.75, 1.03

-0.75, $-3/8$, 1.03, 1.67, $5/2$

- $3/8$, -0.75, $5/2$, 1.03, 1.67

- $3/8$, -0.75, 1.03, $5/2$, 1.67

-0.75, $-3/8$, $5/2$, 1.03, 1.67

Correct answer: -0.75, $-3/8$, 1.03, 1.67, $5/2$

In order to place the numbers in order, it is best to convert the fractions to decimals.

$$-3/8 = -0.375$$

$$5/2 = 2.5$$

Now, you can place the numbers in order, remembering that -0.375 is greater than -0.75.

-0.75, -0.375, 1.03, 1.67, 2.5, or -0.75, $-3/8$, 1.03, 1.67, $5/2$

8.

Brady can grade 5 essays per hour. If he starts grading essays at 4:30 p.m., which of the following is the best estimate as to when he will be finished grading 29 essays?

10:30 p.m.

9:30 p.m.

10:00 p.m.

11:00 p.m.

Correct answer: 10:30 p.m.

Since Brady can grade 5 essays in 1 hour, set up a proportion to find out how long it will take him to grade 29 essays.

$$5/1 = 29/x$$

$$5x = 29$$

$$x = 29/5 = 5 \frac{4}{5}$$

The question asks for an estimate, so we can round up $5 \frac{4}{5}$ to 6 hours.

Add 6 hours to 4:30 p.m. to get 10:30 p.m.

9.

Select the number that matches the written value: four hundred and twenty-five thousandths.

400.025

0.425

425,000

4025

Correct answer: 400.025

The word and is used to represent a decimal. As such, the correct answer is 400.025, not 0.425.

To represent 0.425, the question would ask for four hundred twenty-five thousandths. 425,000 reads four hundred twenty-five thousand, and 4025 reads four thousand twenty-five.

10.

Sandy earned 2.5% commission on all of her sales. In May, Sandy sold \$175,162. How much was Sandy's commission check for May?

\$4,379.05

\$4,790.50

\$5,254.86

\$6,274.30

Correct answer: \$4,379.05

In order to solve the problem, multiply the sales by the commission percentage.

$$\$175,162 \times 0.025 = \$4,379.05$$

11.

If $6x^2 - 2 = 94$, what is the value of $x^4 - 5x$?

236

192

64

128

Correct answer: 236

To solve, you must first solve for x.

$$6x^2 - 2 = 94$$

$$6x^2 = 94 + 2$$

$$x^2 = 96/6 = 16$$

$$x = 4$$

Next, solve for the other equation ($x^4 - 5x$), using the value of 4 for x.

$$x^4 - 5x = 4^4 - 5(4) = 256 - 20 = 236$$

12.

Every 30 minutes, 500 Americans are involved in vehicular accidents. How many vehicular accidents occur in 600 minutes?

10,000 accidents

18,000 accidents

5,000 accidents

9,000 accidents

Correct answer: 10,000 accidents

In order to find out how many vehicle accidents occur over a 600-minute period, you need to start by finding out how many 30-minute periods are in 600 minutes.

$$600 \div 30 = 20 \text{ periods}$$

Next, multiply the number of periods by the number of accidents per period.

$$20 \times 500 = 10,000$$

13.

The ratio of students to teachers in a kindergarten school is 30:1. If there are 8 teachers, what is the total number of people in the school?

248

240

312

232

Correct answer: 248

The ratio of students to teachers is 30:1, so we can set up a proportion to find out how many students are in the school.

30 students/1 teacher = x students/8 teachers

$$30/1 = x/8$$

$$x = 240$$

Add the numbers of teachers and students to find the total number of people in the school.

$$240 + 8 = 248$$

14.

Find the result of the following operation:

Multiply $\frac{3}{4}$ by itself, then subtract the result from 1.**7/16**

9/16

-7/16

-9/16

Correct answer: 7/16

The operation is $1 - (\frac{3}{4} \times \frac{3}{4})$.

First, multiply $\frac{3}{4}$ by $\frac{3}{4}$.

$$\frac{3}{4} \times \frac{3}{4} = \frac{9}{16}$$

Solve the expression by converting 1 into a fraction.

$$1 - \frac{9}{16}$$

$$\frac{16}{16} - \frac{9}{16} = \frac{7}{16}$$

15.

Solve the following by adding.

$10 \frac{1}{9} + 2 \frac{1}{4}$

12 $\frac{13}{36}$ 12 $\frac{2}{9}$ 20 $\frac{2}{9}$ 8 $\frac{1}{5}$ *Correct answer: 12 $\frac{13}{36}$* **1. Convert 10 $\frac{1}{9}$ to improper fraction.***Use this rule: $a \frac{b}{c} = \frac{ac+b}{c}$*

$(10 \times 9 + 1) / 9 + 2 \frac{1}{4}$

2. Simplify 10×9 to 90

$(90 + 1) / 9 + 2 \frac{1}{4}$

3. Simplify $90 + 1$ to 91

$91 / 9 + 2 \frac{1}{4}$

4. Convert $2 \frac{1}{4}$ to improper fraction.*Use this rule: $a \frac{b}{c} = \frac{ac+b}{c}$*

$91 / 9 + (2 \times 4 + 1) / 4$

5. Simplify 2×4 to 8

$91 / 9 + (8 + 1) / 4$

6. Simplify $8 + 1$ to 9

$91 / 9 + 9 / 4$

7. Find the Least Common Denominator (LCD) of $91/9, 9/4$

Method 1: By Listing Multiples List out all multiples of each denominator, and find the first common one.

9 : 9,18,27,36

4 : 4,8,12,16,20,24,28,32,36

Therefore, the LCD is 36

Method 2: By Prime Factors List all prime factors of each denominator, and find the union of these primes.

9 : 3,3

4 : 2,2

Therefore, the LCD is $2 \times 2 \times 3 \times 3 = 36$

8. Make the denominators the same as the LCD

$(91 \times 4) / (9 \times 4) + (9 \times 9) / (4 \times 9)$

9. Simplify - Denominators are now the same

$364/36 + 81/36$

10. Join the denominators

$(364+81)/36$

11. Simplify

$445/36$

12. Convert to mixed fraction

$12 \frac{13}{36}$

16.

How many milliliters are in 13.30 liters?

13,300 milliliters

133,000 milliliters

1,330 milliliters

133 milliliters

Correct answer: 13,300 milliliters

There are 1,000 milliliters in one liter; therefore, there are 13,300 milliliters in 13.30 liters ($1,000 \times 13.30 = 13,300$).

17.

A book writing conference of 800 individuals had a 3 to 1 ratio of women to men. How many men attended the book writing conference?

200 men

150 men

220 men

260 men

Correct answer: 200 men

Set up an equation, with x representing the number of men.

Because there were 3 times as many women as men, $3x$ equals the number of women.

Solve the following equation:

$$x + 3x = 800$$

$$4x = 800$$

$$x = 200$$

18.

Meghan has exactly 23 weeks until she retires. She works 8-hour days, 5 days each week. How many hours of work does Meghan have before she retires?

920 hours

960 hours

1,220 hours

1,020 hours

Correct answer: 920 hours

First, convert 23 weeks to working days.

$23 \text{ weeks} \times 5 \text{ days} / 1 \text{ week} = 115 \text{ days}$

Next, convert 115 days to working hours.

$115 \text{ days} \times 8 \text{ hours} / 1 \text{ day} = 920 \text{ hours}$

19.

View the *supporting details* to answer the following question.

The data shows the interest rates offered by two different banks every year. Stephen deposited \$3,000 in Bank A at the beginning of 2009. How much **more** interest would he have earned during that year if he had deposited it in Bank B?

\$6

\$4

\$3

\$5

Correct answer: \$6

The interest rate for Bank A in 2009 was 3.9% (or 0.039), so the interest earned on \$3,000 is:

$$0.039 \times 3000 = \$117$$

The interest that would have been earned if Stephen had deposited that amount in Bank B is:

$$0.041 \times 3000 = \$123$$

The difference between these two is $\$123 - \$117 = \$6$

20.

Select the number that matches the written value: four hundred thirty thousand eleven.

430,011

400,311

0.043011

43,011

Correct answer: 430,011

400,311 reads four hundred thousand three hundred eleven, 0.043011 reads forty-three thousand eleven hundred thousandths, and 43,011 reads forty-three thousand eleven.

21.

Convert 0.03245 to a percentage.

3.245%

32.45%

0.325%

324.5%

Correct answer: 3.245%

A decimal can be converted to a percent by multiplying it by 100 and adding a percent sign.

$$0.03245 \times 100\% = 3.245\%$$

22.

After working 3 hours, Maude has knitted 4 hats. At the same rate, how many hats can she knit in 24 hours?

32

24

48

30

Correct answer: 32

Let x = the number of hats Maude can make in 3 hours. Set up a proportion:

$$3/4 = 24/x$$

$$3x = 24(4)$$

$$x = 96/3$$

$$x = 32$$

23.

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

2 1/10

13 1/8

2 1/8

8 1/8

Correct answer: 2 1/10

In order to simplify the expression, convert the mixed numbers to improper fractions.

$$5 \frac{1}{4} = \frac{21}{4}$$

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

$$5 \frac{1}{4} \div 2 \frac{1}{2} = \frac{21}{4} \div \frac{5}{2}$$

To divide by a fraction, multiply by its reciprocal.

$$\frac{21}{4} \div \frac{5}{2} = \frac{21}{4} \times \frac{2}{5}, \text{ or } \frac{42}{20}$$

Reduce to its lowest terms.

$$\frac{42}{20} \div \frac{2}{2} = \frac{21}{10}$$

Finally, express 21/10 as a mixed number.

$$\frac{21}{10} = 2 \frac{1}{10}$$

24.

Joyce runs 10 miles in 60 minutes. How much longer does it take her to run 12 miles?

12 minutes

18 minutes

10 minutes

15 minutes

Correct answer: 12 minutes

Set up a proportion to find out how long it will take Joyce to run 12 miles.

$$10 \text{ miles}/60 \text{ minutes} = 12 \text{ miles}/x \text{ minutes}$$

$$10/60 = 12/x$$

$$720 = 10x$$

$$x = 72 \text{ minutes}$$

Subtract 72 minutes from 60 minutes to find the difference.

$$72 - 60 = 12 \text{ minutes}$$

25.

$4/5$ is how many times greater than $2/5$?

2

1.5

1.2

4

Correct answer: 2

The mathematical expression is $4/5 = x(2/5)$.

Solve:

$$4/5 = x(2/5)$$

$$x = 4/5 \div 2/5 = 4/5 \times 5/2 = 20/10 = 2$$

$$x = 2$$

26.

Arrange in descending order:

5, $\frac{1}{6}$, 280%**5, 280%, $\frac{1}{6}$** 280%, $\frac{1}{6}$, 55, $\frac{1}{6}$, 280% $\frac{1}{6}$, 280%, 5

Correct answer: 5, 280%, $\frac{1}{6}$

Convert all the values to decimals to determine the appropriate order:

$$5 = 5.0$$

$$\frac{1}{6} = 0.16667$$

$$280\% = 2.80$$

Therefore, in descending order - which means from greatest to least - the values are:

5.0, 2.80, 0.16667 or 5, 280%, $\frac{1}{6}$

27.

Nick has $2\frac{3}{4}$ pounds of wheat flour, while his friend has $4\frac{1}{5}$ pounds of wheat flour. How many pounds of flour do they have altogether?

6 $\frac{19}{20}$ pounds7 $\frac{1}{20}$ pounds6 $\frac{9}{20}$ pounds6 $\frac{1}{25}$ pounds

Correct answer: 6 $\frac{19}{20}$ pounds

First, change the fractions to improper fractions by multiplying the denominator by the base number and adding it to the numerator.

$$2\frac{3}{4} = 4 \times 2 + 3 = \frac{11}{4}$$

$$4\frac{1}{5} = 5 \times 4 + 1 = \frac{21}{5}$$

Next, find a common denominator by multiplying the two denominators.

$$4 \times 5 = 20$$

Now convert each fraction so that both have denominators of 20.

$$\frac{11}{4} \times \left(\frac{5}{5}\right) = \frac{55}{20}$$

$$\frac{21}{5} \times \left(\frac{4}{4}\right) = \frac{84}{20}$$

Add the fractions together.

$$\frac{55}{20} + \frac{84}{20} = \frac{139}{20}$$

To convert to a proper fraction, divide 139 by 20.

$$\frac{139}{20} = 6\frac{19}{20} \text{ pounds}$$

28.

John adopted his dog exactly 5 years and 12 days ago. At this instant, how many minutes has John had his dog? (Ignore leap years.)

2,645,280 minutes

2,217,116 minutes

3,098,732 minutes

1,872,234 minutes

Correct answer: 2,645,280 minutes

Start by finding the number of days in 5 years.

1 year = 365 days

1 year x 5 = 365 days x 5 = 1,825 days

Add the 12 days.

1,825 days + 12 days = 1,837 days

Convert the number of days to hours.

1 day = 24 hours

1 day x 1,837 = 24 hours x 1,837 = 44,088 hours

Convert the number of hours to minutes.

1 hour = 60 minutes

1 hour x 44,088 = 60 minutes x 44,088 = 2,645,280 minutes

29.

Solve for x:

$$x = 6^4$$

1,296

36

24

4,096

Correct answer: 1,296

Exponents indicate that a number should be multiplied by itself repeatedly.

6^4 is equivalent to $6 \times 6 \times 6 \times 6 = 1,296$

30.

All **except** which of the following numbers are solutions of the inequality $8x + 2 < 18$?

3

1

-1

-3

Correct answer: 3

Since $8x + 2 < 18$, then $8x < 16$, and $x < 2$.

Of the options listed, only 3 is not less than 2.

31.

The cost of a 7.1" laptop is \$960. If this amount includes 16% tax, what is the cost of the laptop before tax?

\$828

\$806

\$695

\$614

Correct answer: \$828

\$960 is the actual cost of the computer, x , plus 16% tax.

Therefore, $960 = x + .16x$

$960 = 1.16x$

$x = 960/1.16$

$x = \$827.59$, or about \$828

The amount $\$960 \cong 100\% + 16\% = 116\%$

The actual cost $\cong 100\% \cong 100/116 \times 960 = \828

32.

1 liter = 1.76 pints

Calculate the number of liters in 56.32 pints.

32 liters

38 liters

28 liters

42 liters

*Correct answer: 32 liters**Set up a proportion to find the number of liters in 56.32 pints.**1 liter/1.76 pints = x number of liters/56.32 pints*

$$1/1.76 = x/56.32$$

$$1.76x = 56.32 \times 1$$

$$x = 56.32/1.76 = 32 \text{ liters}$$

33.

Memorial Hospital has invited a therapy dog named Friendly to visit patients on the pediatric floor. One in five patients is too ill to have Friendly visit. If there are 45 patients on the pediatric floor, how many patients will Friendly see today?

36

25

5

40

Correct answer: 36

Friendly will visit four of every five patients (4:5). Expressed as a fraction, this is $\frac{4}{5}$.

$$\frac{4}{5} \times 45 = 36$$

Therefore, Friendly will visit 36 patients today.

34.

View the *supporting details* to answer the following question.

What is the median number of cups of coffee sold per hour?

32

30.2

34

36

Correct answer: 32

The median is the number in the middle of a set of numbers; that is, half of the numbers have values that are greater than the median, and half have values that are less.

Here, the number of cups of coffee sold per hour are 32, 22, 20, 41, and 36.

Thus, there are 2 values after 32, and two values before 32.

35.

Solve the following by multiplying and reducing to the lowest common denominator.

$$5/9 \times 2/9$$

10/81

1 1/9

7/9

7/81

Correct answer: 10/81

1. Apply this rule: $a/b \times c/d = ac/bd$

$$(5 \times 2) / (9 \times 9)$$

2. Simplify 5×2 to 10

$$10 / (9 \times 9)$$

3. Simplify 9×9 to 81

$$10/81$$

36.

Jackson bought tickets for a new television that his office was raffling off. Jackson purchased 15 tickets, George purchased 30 tickets, Amy purchased 15 tickets, and Greg purchased 45 tickets.

If these are the only participants, what is the probability that one of Jackson's tickets will be drawn as the winner of the television?

1/7

3/5

1/2

5/8

Correct answer: 1/7

Probability is the number of desired outcomes divided by the total number of outcomes.

In this question, Jackson purchased 15 tickets (the number of desired outcomes) and there was a total of 105 tickets purchased (the total number of possible outcomes), or 15/105.

The fraction can be simplified.

$$15/105 \div 15/15 = 1/7$$

37.

Solve the following by multiplying and reducing to the lowest common denominator.

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

$3 \frac{3}{4}$

$\frac{3}{4}$

$5 \frac{3}{4}$

$4 \frac{3}{4}$

Correct answer: $3 \frac{3}{4}$

1. Simplify

$\frac{15}{4}$

2. Convert to mixed fraction

$3 \frac{3}{4}$

38.

$$|3 + x| = 5$$

Which of the following options is the correct solution set for the above equation?

{-8, 2}

{2, 8}

{-8, -2}

{-8, 8}

Correct answer: {-8, 2}

The bars which surround the equation signify “absolute value,” which refers to the distance of a number from zero. Therefore, the outcome can be either positive or negative. The equation $|3 + x| = 5$ has two solutions:

$$3 + x = -5 \text{ and } 3 + x = 5$$

Solve the first equation.

$$3 + x = -5$$

$$x = -5 - 3$$

$$x = -8$$

Solve the next equation.

$$3 + x = 5$$

$$x = 5 - 3$$

$$x = 2$$

Therefore, the set of possible solutions is {-8, 2}

39.

If a class consists of 15 men and 12 women, what is the ratio of women to the class?

12:27

12:15

15:12

12:3

Correct answer: 12:27

This question is asking the relationship between the number of women and the total number of people in the class (not just men).

We find the total number of people by adding men and women together, which equals 27.

The number of women in the class is 12, so the ratio is 12:27.

40.

Express 92,345 in scientific notation.

$$9.2345 \times 10^4$$

$$92.345 \times 10^3$$

$$0.92345 \times 10^5$$

$$923.45 \times 10^2$$

Correct answer: 9.2345×10^4

To express a number in scientific notation, express it as the product of a number between 1 and 10 and a power of 10. In this case, the number between 1 and 10 is 9.2345. In going from 9.2345 to 92,345, you move the decimal point 4 places to the right. Each move represents a multiplication by 10, and 4 moves represents a multiplication by 10^4 . Therefore, the correct answer is 9.2345×10^4 .

41.

There are 210 students in a nursing school class. After graduation, 30 will work in home health care. What is the ratio of students who will work in home health care to those who will not work in home health care? Simplify your answer.

1:6

2:12

1:7

30:180

Correct answer: 1:6

If 30 work in home health care, 180 will not ($210 - 30 = 180$).

The ratio of those who work in home health care to those who do not is thus 30:180.

The highest common denominator of 30 and 180 is 30.

$$30/30 = 1$$

$$180/30 = 6$$

Therefore, the ratio of graduates who will work in home health care to those who will work elsewhere is 1:6.

42.

A couple tipped their waitress 18% of their \$62.43 check. What amount did the waitress receive as a tip?

\$11.24

\$9.36

\$12.49

\$10.61

Correct answer: \$11.24

In order to solve this problem, convert 18% to a decimal.

$$18\% = 18/100 = 0.18$$

Multiply the check total by the percentage and round to the nearest penny.

$$\$62.43 \times 0.18 = \$11.2374 = \$11.24$$

43.

Last month, the balance in Samantha's checkbook was \$807.25. Since then, she has deposited her latest pay check of \$1,981.16 and written checks for \$650.00 (rent), \$299.90 (car payment), and \$221.27 (student loan payment).

What is the current balance of Samantha's checking account?

\$1,617.24

\$1,802.98

\$1,465.83

\$1,232.09

Correct answer: \$1,617.24

In order to determine the current balance in Samantha's account, we take the original balance in her account and add it to her pay check.

$$\$807.25 + \$1981.16 = \$2788.41.$$

Next, we subtract Samantha's payments from this amount.

$$\$2788.41 - \$650 - \$299.90 - \$221.27 = \$1617.24.$$

44.Subtract $(x - 2x + 3)$ from $(2x - 3 - 5x)$.

$$\mathbf{-2x - 6}$$

$$2x + 9$$

$$-2x - 9$$

$$2x + 6$$

Correct answer: $-2x - 6$

Calculate the operation.

$$(2x - 3 - 5x) - (x - 2x + 3)$$

$$(-3x - 3) - (3 - x)$$

$$-3x - 3 + (-3) - (-x)$$

$$-3x - 3 - 3 + x$$

$$-2x - 6$$

45.

Jack drives x miles one day, y miles the next, and z miles the third. What is the total number of miles driven by Jack?

$$x + y + z$$

$$xyz$$

$$(x + y + z)/3$$

$$xy + z$$

Correct answer: $x + y + z$

The question asks for a total number, which requires only addition. Therefore, $x + y + z = \text{total number of miles driven}$.

46.

St. Mary's Hospital has a total of six floors. The total patient census at St. Mary's today is 280 patients. One of every seven patients today is on the pediatric floor. How many patients are on the pediatric floor at St. Mary's today?

40

140

46

28

Correct answer: 40

A ratio can be used to solve this problem. Since one out of every seven patients is on the pediatric floor, the ratio used to solve the problem is 1:7.

In the following equation, x is used to represent the unknown number of pediatric patients out of the known 280 total patients at St. Mary's Hospital:

$$1/7 = x/280$$

Cross multiply: $7x = 1 \times 280$

$$7x = 280$$

$$x = 280/7$$

$$x = 40$$

Forty patients are on the pediatric floor at St. Mary's today.

47.

Roselyn lost 4% after selling her used couch for \$320. Find the original price of the couch.

\$333

\$336

\$340

\$342

Correct answer: \$333

The original price of the couch is 100% of the selling price, minus 4%.

100% - 4% = 96%, or 0.96.

Set up an equation to solve for the original cost, c .

$$320 = 0.96c$$

$$320 \div 0.96 = c$$

$$c = 333.33 = \sim \$333$$

48.

A pharmacy filled 25 brand name prescriptions, 35 generic prescriptions, and some over-the-counter (OTC) prescriptions. There is a 1 to 3 ratio of generic prescriptions to OTC prescriptions.

Which of the following numbers in the problem are needed to find the total number of OTC prescriptions that were filled?

35, 1, and 3 only

25, 1, and 3 only

35, 25, 1, and 3

1 and 3 only

Correct answer: 35, 1, and 3 only

In order to find the actual number of OTC prescriptions, you need the numbers in the initial ratio, plus one actual number. This can be set up as an equation:

$$\frac{1}{3} = \frac{35}{x}$$

You do not need the number of brand name prescriptions because this is not part of the ratio that is given.

49.

Jack mixed salt and sugar in a ratio of 2:3 in a container to investigate its taste and other characteristics. If the total weight of the mixture was 115 grams, how many more grams of sugar were added than grams of salt?

23 grams

77 grams

46 grams

38 grams

Correct answer: 23 grams

The total weight of the mixture is 115 grams. Add together the parts to get the whole:

$$2 + 3 = 5$$

Since salt represents 2 out of 5 of the parts, find $\frac{2}{5}$ of 115.

$$\frac{2}{5} \times 115 = \frac{230}{5} = 46 \text{ grams}$$

To find the weight of the sugar, simply subtract the weight of the salt (46) from the total weight.

$$115 - 46 = 69 \text{ grams}$$

To find the difference between the weights of sugar and salt, subtract the two.

$$69 - 46 = 23 \text{ grams}$$

50.

Three steaks were purchased from the grocery store. The first steak weighed $1 \frac{1}{2}$ pounds, the second steak weighed $1 \frac{1}{4}$ pounds, and the third steak weighed $1 \frac{1}{8}$ pounds. What was the total weight of the three steaks purchased from the grocery store?

 $3 \frac{7}{8}$ pounds $1 \frac{7}{8}$ pounds $3 \frac{1}{6}$ pounds $1 \frac{1}{64}$ pounds

Correct answer: $3 \frac{7}{8}$ pounds

In order to find the total weight, add the three amounts together by first finding the lowest common denominator, which is 8. Convert the fractions to be expressed in eighths.

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

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

$$1 \frac{1}{8} = 1 \frac{1}{8}$$

Add the whole numbers together.

$$1 + 1 + 1 = 3$$

Next, add the numerators of the fractions together.

$$4 + 2 + 1 = 7$$

Therefore, the total weight is $3 \frac{7}{8}$ pounds.

51.

Express 32 as a percentage of 40.

80%

75%

85%

65%

Correct answer: 80%

To express $32/40$ as a percentage, divide 32 by 40.

$$32/40 = 4/5$$

Convert to a decimal and multiply by 100 to find the percentage.

$$4/5 = 0.8 \times 100\% = 80\%$$

52.

$$|5 + x| = 10$$

Which of the following options is the correct solution set for the above equation?

{-15, 5}

{5, 15}

{-5, 5}

{-15, -5}

Correct answer: {-15, 5}

The bars which surround the equation signify “absolute value,” which refers to the distance away from zero. Therefore, solutions to absolute value equations can be either positive or negative. The equation $|5 + x| = 10$ can be written in two ways:

$$5 + x = 10 \text{ and } 5 + x = -10$$

Solve the first equation.

$$5 + x = 10$$

$$x = 5$$

Solve the second equation.

$$5 + x = -10$$

$$x = -15$$

Therefore, the correct solution set is {-15, 5}.

53.

Convert 0.04 into a percentage.

4%

40%

0.4%

0.04%

Correct answer: 4%

A decimal can be converted to a percent by multiplying it by 100 and adding a percent sign.

$$0.04 \times 100 = 4\%$$

54.

If David's lawn has an area of 20 square yards, what is the closest area in square feet?

180 ft²60 ft²20 ft²120 ft²

Correct answer: 180 ft²

One square yard (yd²) equals 9 square feet (ft²). Therefore, multiply 20 yd² by 9.

$$20 \times 9 = 180 \text{ ft}^2$$

55.

$$3 \frac{1}{6} \div 2 \frac{1}{4}$$

Which of the following options correctly simplifies the above expression?

$$1 \frac{11}{27}$$

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

$$1 \frac{1}{8}$$

$$6 \frac{11}{27}$$

Correct answer: $1 \frac{11}{27}$

In order to simplify the expression, express the mixed numbers as improper fractions.

$$3 \frac{1}{6} = \frac{19}{6}$$

$$2 \frac{1}{4} = \frac{9}{4}$$

In order to divide by a fraction, multiply it by its reciprocal.

$$3 \frac{1}{6} \div 2 \frac{1}{4} = \frac{19}{6} \div \frac{9}{4} = \frac{19}{6} \times \frac{4}{9}$$

$$(\frac{19 \times 4}{6 \times 9}) = \frac{76}{54}$$

Reduce the fraction to its lowest terms and express as a mixed number.

$$\frac{76}{54} \div \frac{2}{2} = \frac{38}{27}, \text{ or } 1 \frac{11}{27}$$

56.

St. Joseph's Hospital staffs its intensive care unit (ICU) with RNs, LPNs, unit secretaries, and CNAs in a ratio of 3:1:1:3. Sixteen employees work in each shift to care for 30 patients. How many of the staff members working each shift are RNs?

6

8

12

2

Correct answer: 6

To solve the problem, let x represent the unknown number of RNs working.

There are a total of 8 staff members in the provided ratio (3+1+1+3).

Use the following equation to solve for x :

$$x/16 = 3/8$$

Cross multiply: $8x = 3 \times 16$

$$8x = 48$$

$$x = 48/8$$

$$x = 6$$

Of the staff members working in the ICU, six are RNs.

57.

An investor invests \$12,000 into a mutual fund and earns 4.9% on the principle for each of five years. How much interest has accrued at the end of the period?

\$2,940

\$3,148

\$2,805

\$2,674

Correct answer: \$2,940

To calculate interest earned over a period of time, you would use the formula $I=PRT$.

Interest equals principle (\$12,000) times the rate of return (.049) times the length of time (5 years):

$$(12,000)(.049)(5) = \$2,940.$$

58.

Solve:

$2 + (6/2)$

5

4

7

2

Correct answer: 5

PEMDAS (parentheses, exponents, multiplication, division, addition, subtraction) dictates the order of operations.

Division should be performed before addition.

$2 + (6/2)$

$2 + 3 = 5$

59.

The product of two numbers is 4.536. If one of the numbers is 0.9, what is the other number?

5.04

4.05

4.50

5.08

Correct answer: 5.04

Since the product is 4.536 and one of the numbers is 0.9, let's set up an equation with x representing the unknown number.

$$0.9(x) = 4.536$$

$$x = 4.536 \div 0.9 = 5.04$$

60.

Solve the following by subtracting.

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

$1 \frac{7}{12}$

$1 \frac{1}{3}$

$1 \frac{1}{2}$

$1 \frac{3}{4}$

Correct answer: $1 \frac{7}{12}$ **1. Convert $2 \frac{1}{3}$ to improper fraction***Use this rule: $a \frac{b}{c} = \frac{ac+b}{c}$*

$(2 \times 3 + 1) / 3 - \frac{3}{4}$

2. Simplify 2×3 to 6

$(6 + 1) / 3 - \frac{3}{4}$

3. Simplify $6 + 1$ to 7

$\frac{7}{3} - \frac{3}{4}$

4. Find the Least Common Denominator (LCD) of $\frac{7}{3}, \frac{3}{4}$ Method 1: By Listing Multiples List out all multiples of each denominator, and find the first common one.

$3 : 3, 6, 9, 12$

$4 : 4, 8, 12$

*Therefore, the LCD is 12*Method 2: By Prime Factors List all prime factors of each denominator, and find the union of these primes.

$3 : 3$

4 : 2,2

Therefore, the LCD is $2 \times 2 \times 3 = 12$

5. Make the denominators the same as the LCD

$$(7 \times 4) / (3 \times 4) - (3 \times 3) / (4 \times 3)$$

6. Simplify - Denominators are now the same

$$28/12 - 9/12$$

7. Join the denominators

$$(28 - 9) / 12$$

8. Simplify

$$19/12$$

9. Convert to mixed fraction

$$1 \frac{7}{12}$$

61.

If a car travels 150 miles in 2.5 hours, how far will it travel in 3.5 hours?

210 miles

225 miles

310 miles

240 miles

Correct answer: 210 miles

This question can be answered by setting it up as a proportion.

$$150 \text{ miles}/2.5 \text{ hours} = n \text{ miles}/3.5 \text{ hours}$$

$$150/2.5 = n/3.5$$

$$150 \times 3.5 = 2.5n$$

$$525 = 2.5n$$

$$525/2.5 = n$$

$$n = 210 \text{ miles}$$

62.

Harriet, a respiratory therapist, averages 70,000 steps per week as measured on her FitGal pedometer. Some of these steps are taken at work in the hospital and some are taken in Harriet's neighborhood after work each day.

If the ratio of hospital steps to neighborhood steps is 2:9, how many steps does Harriet take at the hospital each week?

20,000

16,000

28,000

60,000

Correct answer: 20,000

The question states that the ratio of hospital steps to neighborhood steps is 2:9 and asks you to calculate the total number of hospital steps. Therefore, you need to first determine the ratio of hospital steps to total steps.

Harriet takes 2 of every 9 steps in total at the hospital.

Hospital Steps : Total steps = 2:9

$2/9 \times 70,000 = 20,000$

Harriet takes 20,000 steps at the hospital each week.

63.

Simplify:

$$(27x + 9) / 3$$

$$9x + 3$$

$$27x + 3$$

$$9x + 9$$

$$27x + 3$$

Correct answer: $9x + 3$

First, find a common multiple and factor it out.

$$(27x + 9) / 3 = 3(9x + 3) / 3$$

The 3 cancels in the numerator and denominator, leaving $9x + 3$.

64.

A shop sells chocolates for \$1.35 each, eggs at \$2.73 per dozen and grapes at \$0.75/100g.

What would the cost be for two chocolates, three dozen eggs, and 500g of grapes?

\$14.64

\$18.19

\$13.72

\$12.70

Correct answer: \$14.64

Two chocolates cost twice as much as one.

$$\$1.35 \times 2 = \$2.70$$

Three dozen eggs would be three times the price of a dozen.

$$\$2.73 \times 3 = \$8.19$$

500g grapes cost 5 times as much as 100g.

$$\$0.75 \times 5 = \$3.75$$

Add the subtotals.

$$\$8.19 + \$3.75 + \$2.70 = \$14.64$$

65.

A bus arrives at the bus station every 2 hours, a second bus arrives every 3 hours, and a third bus arrives every 4 hours. If all 3 buses arrive at 9:00 AM, at what time will all 3 buses next arrive at the same time?

9:00 PM

12:00 PM

3:00 AM

6:00 PM

Correct answer: 9:00 PM

You must look at each time the third bus arrives and determine if it's evenly divisible by the other two. Therefore, you would look at 4, 8, and 12. Because 12 is the only time that is evenly divisible by the times of buses 1 and 2, you know that the buses will all arrive every 12 hours. 9:00 AM = 12 hours = 9:00 PM.

66.

Solve for x:

$$3 + 2x = 12$$

4.5

4

3.5

5

Correct answer: 4.5

Solve the equation $3 + 2x = 12$

Subtract 3 from each side.

$$3 + 2x - 3 = 12 - 3$$

$$2x = 9$$

Next, divide each side by 2.

$$2x/2 = 9/2$$

$$x = 9/2, \text{ or } 4.5$$

67.

A truck is carrying boxes of rice cereal, oat cereal, and wheat cereal in a ratio of 3:6:5. If there are 600 boxes of oat cereal, how many total boxes of cereal are there on the truck?

1,400

1,200

800

14,000

Correct answer: 1,400

To solve the problem, let x represent the unknown number of total boxes of cereal on the truck.

There are 14 boxes of cereal in the sample given ($3 + 6 + 5$).

Use the following equation to solve for x :

$$6/14 = 600/x$$

Cross multiply: $6x = 14 \times 600$

$$6x = 8,400$$

$$x = 8,400/6$$

$$x = 1,400$$

There are 1,400 boxes of cereal on the truck.

68.

Two babies were born on Tuesday. The first baby weighed $6 \frac{1}{4}$ pounds, and the second baby weighed $7 \frac{3}{8}$ pounds. What was the total weight of the two babies?

13 $\frac{5}{8}$ pounds13 $\frac{1}{8}$ pounds42 $\frac{1}{3}$ pounds42 $\frac{5}{8}$ pounds

Correct answer: 13 $\frac{5}{8}$ pounds

Add the two fractional amounts together by finding a common denominator. Since 8 can be divided evenly by 4, 8 is the common denominator.

$$6 \frac{1}{4} = 6 \frac{2}{8}$$

Next, add the base numbers of the fractions together.

$$6 + 7 = 13$$

Add the fractions together.

$$\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$$

Combine the base number and fraction for the answer, 13 $\frac{5}{8}$ pounds.

69.

Alison walks to and from work. The distance to work is 5 kilometers. She also walks frequently to a nearby convenience store; the store is located 2 kilometers from her apartment. If Alison works five days per week, how many miles does she walk to and from work every week?

31.07 miles

32.18 miles

43.5 miles

15.5 miles

Correct answer: 31.07 miles

There are 1.609 kilometers in one mile. Since Alison walks both to and from work, she walks a total of 50 kilometers weekly.

Use a conversion fraction to solve for x , the unknown number of miles Alison walks in a week:

$$1.609/1 = x/50$$

Cross multiply: $1.609x = 50$

$$x = 31.07$$

Alison walks 31.07 miles to and from work every week.

70.

Brent measured the board at $8 \frac{3}{4}$ feet. Shawn measured the same board at $6 \frac{1}{2}$ feet. What is the difference between Brent's measurement and Shawn's measurement?

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

3 feet

2 $\frac{1}{3}$ feet1 $\frac{2}{3}$ feet

Correct answer: 2 $\frac{1}{4}$ feet

To find the difference, convert all mixed numbers to improper fractions.

$$8 \frac{3}{4} = \frac{35}{4}$$

$$6 \frac{1}{2} = \frac{13}{2}$$

Next, find a common denominator and subtract the numbers.

$$\frac{35}{4} - (\frac{13}{2})(\frac{2}{2})$$

$$\frac{35}{4} - \frac{26}{4} = \frac{9}{4} = 2 \frac{1}{4} \text{ feet}$$

$$8 \frac{3}{4} - 6 \frac{2}{4} = 2 \frac{1}{4}$$

You could also use the Bowtie method, where you first need to convert the mixed numbers into improper fractions:

$$8 \frac{3}{4} = \frac{35}{4}, \text{ and } 6 \frac{1}{2} = \frac{13}{2}$$

$$\text{Then, } \frac{35}{4} - \frac{13}{2} = \frac{(70 - 52)}{8} = \frac{18}{8} = \frac{9}{4} = 2 \frac{1}{4}.$$

71.

What is the product of 1.5 and 2.25?

3.375

3.75

37.5

3.37

Correct answer: 3.375

Remove the decimals and multiply the numbers together.

$$15 \times 225 = 3,375$$

When multiplying decimals together, add the total number of decimal places in both numbers and put the total number of decimal places in the answer.

In this case, there is one decimal place in 1.5 and two decimal places in 2.25 for a total of 3 decimal places. Add these to 3,375 to get 3.375.

72.

The hospital is installing new soap dispensers. So far, they have installed 200 dispensers. If there are 300 more dispensers to be installed, how far along are they in the installation process? Express your answer as a ratio.

2:5

1:10

3:5

2:3

Correct answer: 2:5

The hospital will install a total of 500 new soap dispensers ($200 + 300 = 500$).

Of these, 200 have already been installed, or 200:500.

The highest common denominator of 200 and 500 is 100.

$$200/100 = 2$$

$$500/100 = 5$$

Therefore, the ratio of soap dispensers installed to the total number of dispensers to be installed is 2:5.

73.

If Steven gets paid \$2,000 each month, what is his yearly income after an annual tax reduction of 23%?

\$18,480 after taxes

\$15,520 after taxes

\$20,480 after taxes

\$21,700 after taxes

Correct answer: \$18,480 after taxes

Find out how much Steven earns per year by multiplying his monthly salary by 12.

$$\$2,000 \times 12 = \$24,000$$

Find 23% of \$24,000 by converting 23% to a decimal and multiplying.

$$23\% = 23/100 = 0.23$$

$$0.23 \times \$24,000 = \$5,520$$

Since the question asks for Steven's income after taxes, subtract his yearly salary by the tax reduction.

$$\$24,000 - \$5,520 = \$18,480 \text{ after taxes}$$

74.

In his will, Mr. Adams left 30% of his estate to his wife and evenly divided the balance between his son and his daughter. If the son received \$36,000 as his share, what was the total value of the estate?

\$102,857

\$98,522

\$84,109

\$112,986

Correct answer: \$102,857

Mrs. Adams received 30% of the estate, and the two children each received one-half of the remainder, or 35% each. Because their shares were the same, we know that both the son and the daughter received \$36,000. To find the total amount of the estate, we can set up an equation:

$$(36,000) + (36,000) + .30x = x$$

$$x - .30x = 72,000$$

$$.70x = 72,000$$

$$x = \sim\$102,857$$

75.

How many cups are in 0.6 gallons?

9.6 cups

4.8 cups

2.4 cups

14.4 cups

Correct answer: 9.6 cups

There are 16 cups in one gallon; therefore, there are 9.6 cups in 0.6 gallons ($16 \times 0.6 = 9.6$).

76.

How many pounds are equivalent to 20.4 ounces?

1.3 pounds

1.7 pounds

1.8 pounds

1.6 pounds

Correct answer: 1.3 pounds

Set up a proportion to find the answer.

1 pound/16 ounces = x pounds/20.4 ounces

$1/16 = x/20.4$

Cross multiply to solve

$16x = 20.4$

$x = 20.4 \div 16 = 1.3$ pounds

77.Find the value of x by solving the following proportion.

$$21:63 :: 24:x$$

72

56

48

12

Correct answer: 72

1. Convert proportion to a fraction

$$21/63 = 24/x$$

2. Simplify 21/63 to 1/3

$$1/3 = 24/x$$

3. Multiply both sides by x

$$1/3 x = 24$$

4. Simplify $1/3 x$ to $x/3$

$$x/3 = 24$$

5. Multiply both sides by 3

$$x = 72$$

78.

Solve the following by adding.

$$5/16 + 3/16$$

1/2

15/16

1/8

1/4

Correct answer: 1/2

1. Join the denominators

$$(5+3)/16$$

2. Simplify

$$8/16$$

3. Simplify

$$1/2$$

79.

In her will, Laura left 20% of her estate to her niece, 25% to her daughter, and the remaining portion to one of her favorite charities. If the daughter received \$20,000 as her share, what was the total amount of money given to charity?

\$44,000

\$40,000

\$54,000

Not enough information given

Correct answer: \$44,000

Laura gave 25% of her estate, or \$20,000, to her daughter. We can find the total value of the estate by setting up an equation:

$$.25x = 20,000$$

$$x = \$80,000$$

Next, we need to find out the percentage of Laura's total estate that was given to the charity.

$$20 + 25 + y = 100$$

$$45 + y = 100$$

$$y = 55$$

55% of Laura's estate was given to the charity. Since we know the total value of the estate is \$80,000, we multiply that by 55%.

$$80,000 \times .55 = 44,000$$

Laura gave \$44,000 to her favorite charity.

80.

45% of the gross domestic product of a country is contributed by agriculture. Write an expression showing the total amount of contribution made by all other sectors of production.

$$11x/20$$

$$29x/20$$

$$-11x/20$$

$$11x/10 + 1$$

Correct answer: $11x/20$

Let the gross domestic product be x .

*Agriculture = 45% of $x = 45/100 * x$*

$$45x/100 \div 5/5 = 9x/20$$

If $20/20$ represents the entire GDP, subtract to find what other sectors contribute.

$$20x/20 - 9x/20 = 11x/20$$

81.Find the value of x by solving the following proportion.

$$6:78 :: x:208$$

16

136

280

32

Correct answer: 16

1. Rewrite the proportion as a fraction

$$6/78 = x/208$$

2. Simplify 6/78 to 1/13

$$1/13 = x/208$$

3. Multiply both sides by 208

$$16 = x$$

4. Switch sides

$$x = 16$$

82.

At a certain high school, 7 out of every 10 students will end up going to college. If there are 310 students, how many are expected to go to college?

217 students

170 students

187 students

210 students

Correct answer: 217 students

Set up a proportion to find the answer, with x representing the number of students who go to college.

7 students who go to college/10 total students = $x/310$

$$7/10 = x/310$$

$$10x = 2170$$

$$x = 217 \text{ students}$$

83.

A dietician is teaching a class made up of diabetics and nondiabetics in a ratio of 1:2. If there are eight diabetics in the class, how many total students are in the class?

24

12

4

36

Correct answer: 24

There are a total of 24 students in the class.

To solve the problem, let x represent the unknown number of total students in the class.

There are 3 students in the sample given (1 + 2).

Use the following equation to solve for x :

$$1/3 = 8/x$$

Cross multiply: $1x = 3 \times 8$

$$1x = 24$$

$$x = 24/1$$

$$x = 24$$

There are 24 total students in the class.

84.If $4x + 3 = 27$, what is the value of $x^2 + x$?**42**

20

9

5

Correct answer: 42

The value of $x^2 + x = 42$.

$$4x + 3 = 27$$

$$4x = 27 - 3 = 24$$

$$x = 24 / 4 = 6$$

$$x^2 + x = 6^2 + 6 = 36 + 6 = 42$$

85.

$1/5$ is how many times greater than $1/100$?

20

10

15

5

Correct answer: 20

Solve the mathematical expression:

$$1/5 \div 1/100 = 1/5 \times 100/1 = 100/5 = 20$$

86.

An investor invests \$5,500 into a mutual fund and earns 6.75% on the principle for each of three years. How much interest has accrued at the end of the period?

\$1,113.75

\$925.50

\$1,260.15

\$811.90

Correct answer: \$1,113.75

To calculate interest earned over a period of time, you would use the formula $I=PRT$.

Interest equals principle (\$5,500) times the rate of return (.0675) times the length of time (3 years):

$$(5,500)(.0675)(3) = \$1,113.75.$$

87.

Metropolitan Hospital conducted a blood drive and collected six gallons of blood. How many pints of blood were collected?

48 pints

24 pints

96 pints

56 pints

Correct answer: 48 pints

There are 4 quarts in one gallon, and 2 pints in one quart; therefore, there are 8 pints in one gallon.

Use a conversion fraction to solve for x , the unknown number of pints in 6 gallons:

$$x/6 = 8/1$$

Cross multiply: $x = 6 \times 8$

$$x = 48$$

48 pints of blood were collected.

88.

Solve:

$$1.8 \times 4.56$$

8.208

9.403

82.08

9.208

Correct answer: 8.208

Remove the decimals from the numbers and multiply.

$$18 \times 456 = 8208$$

Add the number of decimal places in 1.8 (1 decimal place) and 4.56 (2 decimal places)

$$1 + 2 = 3$$

Starting at the right of 8208, move the decimal three places to the left for the correct answer.

$$8208 = 8.208$$

89.

Josh wants to buy 725g of walnuts. Suppose walnuts cost \$12/kg in the bulk food section. How much money will Josh need to buy the walnuts?

\$8.70

\$9.20

\$7.90

\$8.40

Correct answer: \$8.70

1 kg = 1,000 g, so we can set up a proportion to find out how many kg are equal to 725g.

$$1/1000 = x/725$$

$$1000x = 725$$

$$x = 0.725$$

Let's set up another proportion to find out how much 0.725 kg of walnuts costs.

$$\$12/1\text{kg} = x/0.725\text{kg}$$

$$\$12 \times 0.725\text{kg} = x$$

$$\$8.70 = x$$

90.

Dividing a number by 20 is the same as multiplying that number by what?

1/20

20/20

20/1

20

Correct answer: 1/20

A variable x divided by 20 is $x/20$. Let's take each answer to find out which is equivalent to this value.

$x \times 20/20 = 20x/20 = x$, so 20/20 is not the correct answer.

$x \times 20/1 = 20x/1 = 20x$, so 20/1 is not the correct answer.

$x \times 20 = 20x$, so 20 is not the correct answer.

$x \times 1/20 = x/20$, so 1/20 is the correct answer.

91.

Express 6,234,093 in scientific notation.

$$6.234093 \times 10^6$$

$$0.6234093 \times 10^7$$

$$62.34093 \times 10^5$$

$$623.4093 \times 10^4$$

Correct answer: 6.234093×10^6

To express a number in scientific notation, express it as the product of a number between 1 and 10 and a power of 10. In this case, the number between 1 and 10 is 6.234093. In going from 6.234093 to 6,234,093, you move the decimal point 6 places to the right. Each move represents a multiplication by 10, and 6 moves represents a multiplication by 10^6 . Therefore, the correct answer is 6.234093×10^6 .

92.

Solve the following by adding.

$$3/9 + 2/9$$

5/9

2/3

1/9

2 1/3

Correct answer: 5/9

1. Simplify 3/9 to 1/3

$$1/3 + 2/9$$

2. Find the Least Common Denominator (LCD) of 1/3, 2/9

Method 1: By Listing Multiples

List out all multiples of each denominator, and find the first common one.

3 : 3, 6, 9

9 : 9

Therefore, the LCD is 9.

Method 2: By Prime Factors

List all prime factors of each denominator, and find the union of these primes.

3 : 3

9 : 3, 3

Therefore, the LCD is $3 \times 3 = 9$.

3. Make the denominators the same as the LCD

$$(1 \times 3) / (3 \times 3) + 2/9$$

4. Simplify - Denominators are now the same

$$3/9 + 2/9$$

5. Join the denominators

$$(3+2)/9$$

6. Simplify

$$5/9$$

93.

In his will, Mr. Lincoln left 40% of his estate to his wife and unevenly divided the balance between his two sons. If the younger son received \$24,000 as his share, what was the total value of the estate?

Not enough information is given

\$72,000

\$48,000

\$24,000

Correct answer: Not enough information is given

To find the value of the estate, you need to know either the elder son's share or the fractional part of the estate received by the younger son. Neither of these pieces of information is given.

94.

In a certain set of numbers, the ratio of integers to non-integers is 1:6. What percentage of the numbers in the set are integers?

14.3%

15.1%

50%

31.4%

85.7%

Correct answer: 14.3%

When you know that the given parts add up to the whole, then you can turn a part-to-part ratio into two part-to-whole ratios (put each term of the ratio over the sum of the terms). In this case, since all of the numbers in the set must be either integers or non-integers, the parts do add up to the whole.

The sum of the terms in the ratio 1:6 is 7, so the two part-to-whole ratios are 1:7 and 6:7. $1/7 = 14.3\%$.

95.

Brenda is working in a pediatric clinic. Twenty patients come in today to see the doctor. If one in five patients requires treatment and the rest of the patients are there for well-baby visits, how many well babies will the doctor see today?

16

4

20

5

Correct answer: 16

This problem can be solved using ratios. If one in five babies requires treatment, four in five babies are well; therefore, the ratio used to solve the problem is 4:5.

x is used to represent the unknown number of well babies.

The following equation is used to solve for x:

$$4/5 = x/20$$

Cross multiply: $5x = 4 \times 20$

$$5x = 80$$

$$x = 80/5$$

$$x = 16$$

The doctor will see 16 well babies today.

96.

Forty-five percent of the employees answered that they were not satisfied with the leadership of the organization. If that percentage equals 36 employees, how many employees answered the question?

80 employees

55 employees

64 employees

92 employees

Correct answer: 80 employees

In order to solve the question, convert 45% to a decimal.

$$45\% = 45/100 = 0.45$$

Then use the following equation with n representing the number of employees that answered the question.

$$0.45n = 36$$

$$n = 36 \div 0.45$$

$$n = 80$$
