

Fifth grade math test solution

1.

In the equation below, what is the value of ?

$$(2 + 4) \times 5 = ? + 20$$

First, find the value of $(2 + 4) \times 5$

$$(2 + 4) \times 5 = 6 \times 5 = 30$$

Rewrite the equation

$$30 = ? + 20$$

$$\text{Since } 30 = 10 + 20, ? = 10$$

2.

Darline has a special purse that can hold 20 lipsticks. How many purse does Darline need if she has 420 lipsticks?

A. 20 B. 22 C. 23 D. 21

$20 + 20 + 20 + 20 + 20 = 100$, so 5 purses for 100 lipsticks

10 purses for 200 lipsticks

20 purses for 400 lipsticks

For 420, we just need 1 more purse. Therefore, Darline needs 21 purses

You can get the answer faster if you do a division. $(420 / 20)$

$$\begin{array}{r} 2 \\ 20 \overline{) 420} \end{array}$$

How many 20's can go into 42? $2 \times 20 = 40$ $3 \times 20 = 60$
So 20 can go 2 times into 40. Write down 2 on top

$$\begin{array}{r} 2 \\ 20 \overline{) 420} \\ \underline{- 40} \\ 20 \\ \underline{- 20} \\ 0 \end{array}$$

Multiply 2 by 20 to get 40. Subtract 40 from 42

$$\begin{array}{r}
 2 \\
 20 \overline{) 420} \\
 \underline{-40} \\
 20
 \end{array}$$

Bring down the 0

$$\begin{array}{r}
 21 \\
 20 \overline{) 420} \\
 \underline{-40} \\
 20
 \end{array}$$

How many 20's can go into 20? $1 \times 20 = 20$
 So 20 can go 1 time into 20. Write down 1 on top

$$\begin{array}{r}
 21 \\
 20 \overline{) 420} \\
 \underline{-40} \\
 20 \\
 \underline{-20} \\
 00
 \end{array}$$

Multiply 1 by 20 to get 20. Subtract 20 from 20

3. Represent the following situation with an integer. Then put them in order

A loss of 12 dollars _____

5 feet above sea level _____

a debit of 20 dollars _____

A gain of 50 dollars _____

_____, _____, _____, _____

A loss is always represented with a negative sign, so a loss of 12 dollars is -12

For above, use positive sign. For below, use negative sign

5 feet above is + 5 or just 5

When dealing with banks, a debit is money withdrawn from your account. A credit is money deposited to your account. A debit of 20 dollars is -20

Gain is money received. Loss is money you lose of course. A gain of 50 dollars is +50 or 50

Now put -12, 5, -20, 50 in order.

Negative numbers are always smaller than positive numbers.

When 2 numbers are negative, the bigger number is the one that is smaller when you pretend the sign is not there

For example, -12 is bigger than -20. If you **pretend** the **sign** are **not** here, you have 12 and 20 and 12 is smaller than 20

So from least to greatest, we get -20, -12, 5, 50

4.

Get a CD. Put your finger on the edge. Move your finger around the edge until your finger reaches the same location you had it before moving it.

Your finger measured the _____ of the CD

A. Area **B.** Circumference **C.** Volume **D.** Surface area

The situation above is a measure of the circumference

5.

Debbie studies for 5 hours, John studies for 6 hours, and Ashley studies for 10 hours. What is the average number of hours the 3 students study?

A. 7 **B.** 8 **C.** 8 **D.** 5

Total hours = $5 + 6 + 10 = 21$

Average = total hour / 3 = $21 / 3 = 7$

6.

$-5 + 8 =$ _____

$5 + -8 =$ _____

$-5 + -8 =$ _____

$5 + 8 =$ _____

Strategy: adding opposite numbers = 0. For example, $-8 + 8 = 0$ and $-25 + 25 = 0$

$$-5 + 8 = -5 + 5 + 3 = 0 + 3 = 3$$

$$5 + -8 = 5 + -(5 + 3)$$

Concept: The negative sign next to the parenthesis is for 5 and 3, not just for 5

$$5 + -8 = 5 + -(5 + 3) = 5 + -5 + -3 = 0 + -3 = -3$$

$$-5 + -8$$

Read $-5 + -8$ as lose "5 and then lose 8". This means "total lost of 13" or -13

$$-5 + -8 = -13$$

$$5 + 8$$

Read $5 + 8$ as gain "5 and then gain 8". This means "a total gain of 13" or 13

$$5 + 8 = 13$$

7.

Compare the following two decimals. Use either $<$, $>$, or $=$

$$564.1540791 \quad 564.1540789$$

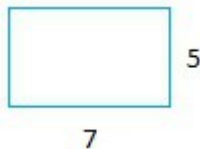
$$564.15407\mathbf{9}1 \quad 564.15407\mathbf{8}9$$

Everything before the 9 (in bold) and the 8 (also in bold) is the same

The bigger number is therefore, the number with the 9 or $564.15407\mathbf{9}1$

$$564.1540791 > 564.1540789$$

8. Find the perimeter and area of the rectangle below:



Perimeter = _____ units

Area = _____ square units

$$\text{Perimeter} = 5 + 5 + 7 + 7 = 10 + 14 = 24 \text{ units}$$

$$\text{Area} = 7 \times 5 = 35 \text{ square units}$$

9.

Get a quarter and toss it.

The different outcome are _____

Write the probability of getting heads as a fraction _____

Write the probability of getting heads as a percent _____

Write the probability of getting heads as a decimal _____

There are 2 outcomes. These are heads or tails

The probability of getting heads written as a fraction is $1/2$

The probability of getting heads written as a percent is 50%

The probability of getting heads written as a decimal is 0.50

10.

Add $2/3$ and $5/6$ _____

Get an equivalent fraction for $2/3$ that has the same denominator as $5/6$

For $2/3$, multiply both 2 and 3 by 2.

We get $4/6$

$$4/6 + 5/6 = (4 + 5)/6 = 9/6$$

11.

Write the answer for number 10 as a mixed number _____

Write the answer for number 10 in lowest terms _____

$$9/6 = (6 + 3) / 6 = 6 / 6 + 3/6 = 1 + 3/6$$

$$1 + 3/6 = 1 \frac{3}{6}$$

You can put $9/6$ in lowest terms when you divide both 9 and 6 by 3

$$9/6 = 3/2$$

12.

Divide 7845 by 15 _____

$$\begin{array}{r} 5 \\ 15 \overline{) 7845} \end{array}$$

How many 15's can go into 78? $15 \times 5 = 75$ $15 \times 6 = 90$
So 15 can go 5 times into 78. Write down 5 on top

$$\begin{array}{r} 5 \\ 15 \overline{) 7845} \\ - 75 \\ \hline 3 \end{array}$$

Multiply 15 by 5 to get 75. Subtract 75 from 78

$$\begin{array}{r} 52 \\ 15 \overline{) 7845} \\ - 75 \\ \hline 34 \end{array}$$

Bring down 4.
How many 15's can go into 34? $15 \times 2 = 30$ $15 \times 3 = 45$
So 15 can go 2 times into 34.
Write down 2 on top next to 5.

$$\begin{array}{r}
 52 \\
 15 \overline{) 7845} \\
 \underline{- 75} \\
 34 \\
 \underline{- 30} \\
 4
 \end{array}$$

Multiply 15 by 2 to get 30. Subtract 30 from 34

$$\begin{array}{r}
 523 \\
 15 \overline{) 7845} \\
 \underline{- 75} \\
 34 \\
 \underline{- 30} \\
 45
 \end{array}$$

Bring down 5.
 How many 15's can go into 45? $15 \times 3 = 45$
 So 15 can go 3 times into 45.
 Write down 3 on top next to 52.

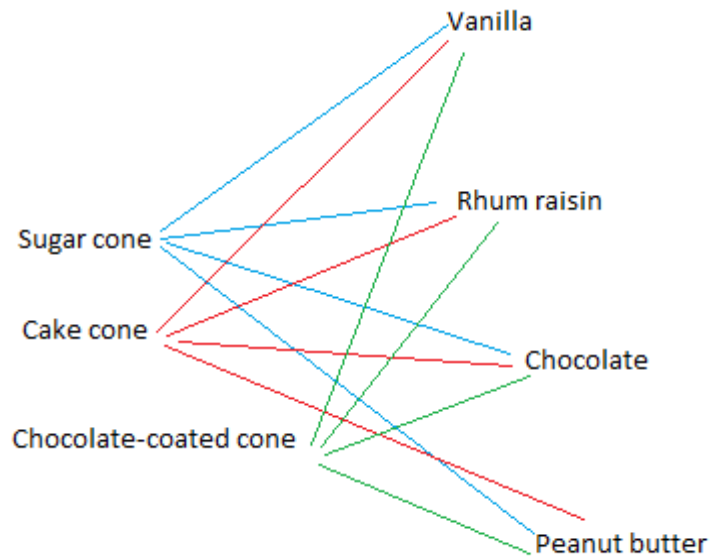
$$\begin{array}{r}
 523 \\
 15 \overline{) 7845} \\
 \underline{- 75} \\
 34 \\
 \underline{- 30} \\
 45 \\
 \underline{- 45} \\
 00
 \end{array}$$

Multiply 15 by 3 to get 45. Subtract 45 from 45

13.

An ice cream place offers vanilla, rhum raisin, chocolate, and peanut butter as flavors. They have sugar cone, cake cone, and chocolate-coated cone.

Make a tree in the space below showing the different combinations of ice cream and cone you can order



How many orders can you place?

A. 7 B. 4 C. 12 D. 3

Count the blue lines, count the red lines, and count the green lines.
The sum is the different orders you can place

$$4 + 4 + 4 = 12$$

You can place 12 different orders.

14.

To find the number on the right, you need to

2	11
4	19
7	31
12	51

- A.** Multiply the number on the left by 5 and then add 1
- B.** Multiply the number on the left by 5 and then subtract 1
- C.** Multiply the number on the left by 4 and then add 3
- D.** Multiply the number on the left by 3 and then add 10

$$2 \times 4 + 3 = 8 + 3 = 11$$

$$4 \times 4 + 3 = 16 + 3 = 19$$

$$7 \times 4 + 3 = 28 + 3 = 31$$

$$12 \times 4 + 3 = 48 + 3 = 51$$

The answer is C

15.

Which of these units is the best to measure the length of a book

- A.** Millimeter **B.** Centimeter **C.** Kilometer **D.** Meter

The answer is B or centimeter.

Kilometer could describe the distance you drive your car.

Meter could describe your height.

Millimeter could describe the length of your nails

16.

Replace the question mark with the missing number

$$64837 - ? = 63936$$

$$54 + ? = 25 + 36$$

Let's find ? for $54 + ? = 25 + 36$

$$25 + 36 = 61$$

$$54 + ? = 61$$

$$54 + 7 = 61, \text{ so } ? = 7$$

To get ? for $64837 - ? = 63936$ just do $64837 - 63936$

$$\begin{array}{r} 64837 \\ - 63936 \\ \hline 1 \end{array}$$

Subtract the ones: $7 - 6 = 1$. Put 1 in the ones place.

$$\begin{array}{r} 64837 \\ - 63936 \\ \hline 01 \end{array}$$

Subtract the tens: $3 - 3 = 0$. Put 0 in the tens place.

$$\begin{array}{r} 318 \\ 64837 \\ - 63936 \\ \hline 00901 \end{array}$$

Borrow a 1 from 4 and add that to 8.

$$18 - 9 = 9 \qquad 3 - 3 = 0 \qquad 6 - 0 = 6$$

17.

Two sides of an isosceles triangle measure 6 and 10. The perimeter of the triangle could be

A. 26 or 21 **B.** 12 or 20 **C.** 22 or 23 **D.** 26 or 22

Since the triangle is isosceles, two sides are the same.

The last side that is not given must be equal to either 6 or 10

If the last side is 6, the perimeter is $6 + 6 + 10 = 22$

If the last side is 10, the perimeter is $10 + 10 + 6 = 26$

The perimeter could be either 22 or 26. the answer is D.

18.

What information could you find with the following situation?

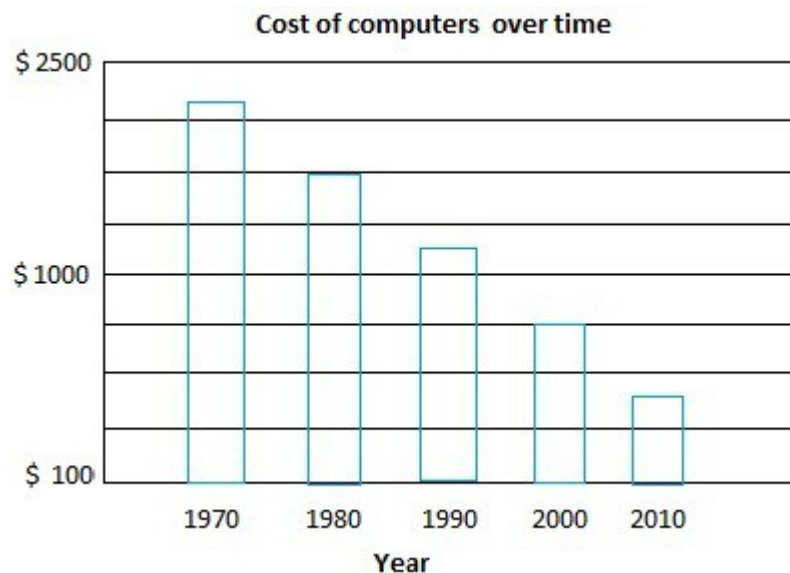
Noemy bought a box of apples for \$4.20. She now has \$2.35 in her purse.

A. Noemy's allowance every month **B.** How much the apples cost **C.** How much money Noemy had before buying the apples **D.** How many apples are there in the box

The answer is C or how much money Noemy had before buying the apples.

19.

Examine the graph below and then choose the correct answer



A. Computers will cost 50 dollars in 2020 **B.** Computer cost has decreased by more than 2000 dollars **C.** Compared to 1970, computers cost half as much in 2010 **D.** In 2030, the price of computers may disappear. Great!

Answer D. In 2030, the price of computers may disappear. Great!

Answer D does **not** apply since we will always have to spend money to buy stuff to include computer.

Answer C. Compared to 1970, computers cost half as much in 2010.

Answer C does **not** apply either since it seems like price of computers have **decreased** by **way more** than half. Half as much should be like $2500 / 2 = 1250$

Answer A. Computers will cost 50 dollars in 2020

Answer A does not apply either. Noone knows for sure what computers will cost in 2020

The graph is not perfect, but answer B is the answer.

20.

You want to share 1000 dollars between you and 5 friends.

Can you share the money evenly?

What is the maximum amount that can be shared evenly?

If they share the leftover too, write what each person gets as a fraction?

The money will be shared between 6 people (You + 5 friends)

Try to divide 1000 by 6

$$\begin{array}{r} 1 \\ 6 \overline{) 1000} \end{array}$$

How many 6's can go into 10? $1 \times 6 = 6$ $2 \times 6 = 12$
So 6 can go 1 time into 10. Write down 1 on top

$$\begin{array}{r} 1 \\ 6 \overline{) 1000} \\ - 6 \\ \hline 4 \end{array}$$

Multiply 1 by 6 to get 6. Subtract 6 from 10

$$\begin{array}{r} 1 \\ 6 \overline{) 1000} \\ - 6 \\ \hline 40 \end{array}$$

Bring down 0

$$\begin{array}{r}
 16 \\
 6 \overline{) 1000} \\
 \underline{- 6} \\
 40
 \end{array}$$

How many 6's can go into 40? $6 \times 6 = 36$ $7 \times 6 = 42$
 So 6 can go 6 times into 40. Write down 6 on top next to 1

$$\begin{array}{r}
 16 \\
 6 \overline{) 1000} \\
 \underline{- 6} \\
 40 \\
 \underline{- 36} \\
 4
 \end{array}$$

Multiply 6 by 6 to get 36. Subtract 36 from 40

$$\begin{array}{r}
 16 \\
 6 \overline{) 1000} \\
 \underline{- 6} \\
 40 \\
 \underline{- 36} \\
 40
 \end{array}$$

Bring the last 0 down. There is nothing else to bring down

$$\begin{array}{r}
 166 \\
 6 \overline{) 1000} \\
 \underline{- 6} \\
 40 \\
 \underline{- 36} \\
 40
 \end{array}$$

How many 6's can go into 40? $6 \times 6 = 36$ $7 \times 6 = 42$
 So 6 can go 6 time into 40. Write down 6 on top next to 16

1 6 6

Multiply 6 by 6 to get 36. Subtract 36 from 40

$$\begin{array}{r} 6 \overline{) 1000} \\ \underline{- 6} \\ 40 \\ \underline{- 36} \\ 40 \\ \underline{- 36} \\ 4 \end{array}$$

Since the remainder or leftover is not 0 but 4, you cannot share 1000 evenly between 6 people

The maximum amount that can be shared evenly is 996

$$1000 - 4 = 996$$

$$\text{Indeed } 996 / 6 = 166$$

The leftover or remainder is 4. If they share that too, each person gets $4/6$