

6th grade Honors

Word Problems (Number Sense) #2

Name: Key

Date: _____ Per: _____

Solve the following word problems by writing the important information, verbal model, expression, work, and complete sentence answer.

1. A local petting zoo had a total of 98,464 visitors last year. The zoo was open every day except Thanksgiving, Christmas, and New Year's Day. What was the average number of visitors per day?

98,464 visitors at the zoo
open 362 days that year
Average # of visitors each day?

$$\begin{array}{r}
 272 \\
 362 \overline{) 98464} \\
 \underline{724} \\
 2606 \\
 \underline{2534} \\
 724 \\
 724 \\
 \hline
 0
 \end{array}$$

$$\left(\begin{array}{c} \text{Total} \\ \text{Visitors} \end{array} \right) \div \left(\begin{array}{c} \text{\# days} \\ \text{open} \end{array} \right)$$

$$98464 \div 362$$

$$\boxed{272} \text{ people}$$

The petting zoo has an average of 272 visitors per day.

2. The area of a rectangular flower bed is $6\frac{1}{2}$ square feet. The width of the flower bed is $\frac{3}{4}$ feet. What is the length of the flower bed?

Area is $6\frac{1}{2}$ square feet
width is $\frac{3}{4}$ feet
length of flower bed?

$$(\text{Area}) \div (\text{width})$$

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

$$\frac{13}{2} \cdot \frac{4}{3}$$

$$\frac{26}{3}$$

$$\boxed{8\frac{2}{3} \text{ ft}}$$

The length of the flower bed is $8\frac{2}{3}$ ft.

3. A high school track is 9.76 meters wide. It is divided into 8 lanes of equal width for track and field events. How wide is each lane?

9.76 meters track
8 lanes of equal width.
How wide is a lane?

$$\begin{array}{r} 1.22 \\ 8 \overline{) 9.76} \\ \underline{-8} \\ 17 \\ \underline{-16} \\ 16 \end{array}$$

$$(\text{Total track}) \div (\text{\# of lanes})$$

$$9.76 \div 8$$

$$\boxed{1.22} \text{ m.}$$

Each lane is 1.22 meters wide.

4. Ramon's hobby is raising parrots. The table gives the weights of five of his birds.

Parrot	Weight (oz)
Jack	6.102
Tippy	5.98
Fritz	6.058
Danny	6.8
Abe	6.06

- A. A female parrot that weighs 13.44 ounces has a chick that weighs 0.56 ounces. How many times the chick's weight is the weight of the mother?

female parrot 13.44 oz.

0.56 ounces each chick.

$$(\text{female weight}) \div (\text{chick's weight})$$

$$13.44 \div 0.56$$

How many times more does the mum weigh?

$$\boxed{24} \text{ times}$$

$$\begin{array}{r} 56 \\ 83 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 240 \\ 56 \overline{) 13.44} \\ \underline{-112} \\ 224 \\ \underline{-224} \\ 0 \end{array}$$

The female parrot weighs 24 times the weight of her chick.

- B. Ramon has an African Grey parrot names Curly that weighs 17.4 ounces. How much heavier is Curly than Tippy?

Curly weighs 17.4 oz.

Tippy weighs 5.98 oz

How much heavier is Curly?

$$(\text{Curly's weight}) - (\text{Tippy's weight})$$

$$17.4 - 5.98$$

$$\boxed{11.42} \text{ oz}$$

$$\begin{array}{r} 17.40 \\ - 5.98 \\ \hline 11.42 \end{array}$$

Curly is 11.42 oz. heavier than Tippy.

C. Ramon buys five 3-pound bags of natural parrot food for \$8.79 per bag and two 5-pound bags for \$13.90 per bag. What is the total cost of parrot food? What is the average cost per pound of parrot food?

5 bags [3-pound bag \$8.79]

2 bags [5-pound bag \$13.90]

Total cost of food?

$$(\# \text{ bags}) (\text{3 pound cost}) + (\# \text{ bags}) (\text{5 pound cost})$$

$$5(8.79) + 2(13.90)$$

$$43.95 + 27.80$$

$$\boxed{71.75} \text{ pay}$$

Ramon will pay \$71.75 on parrot food.

15 pounds
10 pounds

$$\left(\frac{\text{cost}}{\text{total}} \right) \div \left(\frac{\text{total}}{\text{pounds}} \right)$$

$$71.75 \div 25$$

$$\boxed{2.87} \text{ Avg cost.}$$

The average cost per pound is \$2.87.

$$\begin{array}{r} 2.87 \\ 25 \overline{) 71.75} \\ \underline{-50} \\ 217 \\ \underline{-200} \\ 175 \\ \underline{-175} \\ 0 \end{array}$$

5. Denise sells pizza for \$0.89 a slice. Each slice of her pepperoni pizza is 1/8 of a pizza. Each slice of her mushroom pizza is 1/10 of a pizza. Today she sold all of the slices of 7 pepperoni pizzas and 6 mushroom pizzas. How much money did she make?

Sells pizza \$0.89 a slice

Pepperoni pizza sells 1/8 of a pizza (8 slices)

mushroom 1/10 of a pizza is a slice (10 slices)

Sold 7 pepperoni + 6 mushroom pizzas

How much did she make?

$$\begin{array}{r} 116 \\ \times .89 \\ \hline 1044 \\ 9280 \\ \hline 10324 \end{array}$$

10324

$$\left(\# \text{ of pep. slices sold} + \# \text{ of mushroom slices sold} \right) \left(\text{cost of 1 slice} \right)$$

$$(7(8) + 6(10))(0.89)$$

$$(56 + 60)(0.89)$$

$$(116)(0.89)$$

$$\boxed{103.24} \text{ \$ made}$$

Denise made \$103.24 today selling pizzas.

6. One event at a debate tournament lasted $2\frac{4}{5}$ hours. Each contestant spoke for $\frac{2}{15}$ of an hour. How many contestants were there?

1 event debate $2\frac{4}{5}$ hours
 each spoke $\frac{2}{15}$ of an hour
 how many contestants?

$$\left(\begin{array}{c} \text{Total} \\ \text{hours} \end{array} \right) \div \left(\begin{array}{c} \# \text{ of hours} \\ \text{each person} \end{array} \right)$$

$$2\frac{4}{5} \div \frac{2}{15}$$

$$\frac{147}{81} \cdot \frac{153}{21}$$

21 people

The debate had 21 contestants in it.

7. Juan plans to build a bookcase to store his paperback books, DVD's, and CDs. He has lumber that he will use for the sides and back of the bookcase. The bookcase will have five shelves, and each shelf will be $2\frac{1}{2}$ feet long.

A. Juan bought a piece of lumber that is 18 feet long. Does he have enough lumber to make the five shelves? If not, how much more does he need? If so, how much will be left over?

5 shelves ($2\frac{1}{2}$ ft long)
 18 feet long of lumber
 Does he have enough?

$$\left(\begin{array}{c} \text{Total} \\ \text{lumber} \end{array} \right) \div \left(\begin{array}{c} \# \text{ of} \\ \text{shelves} \end{array} \right)$$

$$18 \div 2\frac{1}{2}$$

$$18 \div \frac{5}{2}$$

$$\frac{18 \cdot 2}{5}$$

$$\frac{36}{5}$$

7 $\frac{1}{5}$ shelves

✓ how much left?

$$\left(\begin{array}{c} \text{Total} \\ \text{lumber} \end{array} \right) - \left[\begin{array}{c} \# \\ \text{shelves} \end{array} \right] \left(\begin{array}{c} \text{width} \\ \text{of shelf} \end{array} \right)$$

$$18 - \left[(2\frac{1}{2}) \times (5) \right]$$

$$18 - [12\frac{1}{2}]$$

5.5

Juan has enough lumber for 5 shelves. Juan will have $5\frac{1}{2}$ feet of lumber left over.



B. DVD cases are $\frac{9}{16}$ inch wide. If Juan has 60 DVDs, how many of them will fit on one shelf? How wide would a DVD case have to be in order for 60 of them to fit on one shelf?

DVD cases $\frac{9}{16}$ inch wide

60 DVD's

how many will fit on one shelf?

12 inches = 1 foot

How wide would a DVD have to be to fit 60?

$$\left(\begin{array}{l} \# \\ \text{inches} \\ \text{in a foot} \end{array} \right) \left(\begin{array}{l} \text{Shelf} \\ \text{width} \end{array} \right) \div \left(\begin{array}{l} \text{width of} \\ \text{each DVD} \end{array} \right)$$

$$(12) \left(2 \frac{1}{2} \right) \div \frac{9}{16}$$

$$\frac{12 \cdot 5}{1 \cdot 2}, \frac{16 \cdot 8}{9 \cdot 3}$$

$$\frac{160}{3}$$

$$53 \frac{1}{3} \text{ DVDs}$$

① Juan can only fit 53 DVDs on a $2 \frac{1}{2}$ foot shelf.

② The DVD can only be $\frac{1}{2}$ inch if Juan wants to fit 60 on a shelf.

$$\left(\begin{array}{l} \text{width} \\ \text{of} \\ \text{shelf} \end{array} \right) \left(\begin{array}{l} \# \text{ of} \\ \text{inches in} \\ \text{a foot} \end{array} \right) \div \left(\begin{array}{l} \# \text{ of} \\ \text{DVDs} \end{array} \right)$$

$$2 \frac{1}{2} (12) \div 60$$

$$\frac{5}{2}, \frac{126}{1} \div 60$$

$$30 \div 60$$

$$\frac{1}{2} \text{ inch}$$

C. Juan has 28 paperback books. Each book is $1\frac{1}{4}$ inches wide. Will all his books fit on one shelf? If not, how many will fit and how many will have to go on another shelf? If yes, how many more paperback books, if any, will fit on the same shelf?

28 paperback books

$1\frac{1}{4}$ inches wide (each book)

① Will all the books fit on 1 shelf?

$2\frac{1}{2}$ ft shelf

12 inches = 1 foot

$$\left(\text{width of shelf}\right) \left(\frac{\# \text{ of inches in a foot}}{\text{width of each book}}\right) \div \left(\text{width of each book}\right)$$

$$\left(2\frac{1}{2}\right) (12) \div \left(1\frac{1}{4}\right)$$

$$\frac{5}{2} \cdot \frac{12}{1} \div \frac{5}{4}$$

$$30 \div \frac{5}{4}$$

$$\frac{30}{1} \cdot \frac{4}{5}$$

24 books

② Juan can't fit all 28 books on the shelf. He can only 24 fit 24 of his books on one shelf and the other 4 will have to go on another shelf.

D. Juan measured the location for the bookcase and realized that his shelves can be no more than $1\frac{3}{4}$ feet wide. What is the maximum number of shelves Juan could build for this new bookcase using the lumber he bought? How many paperback books will he be able to store on each of the shorter shelves?

$1\frac{3}{4}$ ft wide only
maximum # of shelves
can be built?

18 ft of lumber

$$\left(\text{total lumber}\right) \div \left(\text{width of 1 shelf}\right)$$

$$18 \div 1\frac{3}{4}$$

$$18 \div \frac{7}{4}$$

$$\frac{18}{1} \cdot \frac{4}{7}$$

$$\frac{72}{7}$$

$10\frac{2}{7}$ shelves

Each book is $1\frac{1}{4}$ inches wide
 $\left(\text{width of shelf}\right) \left(\frac{\# \text{ inches}}{\text{width of each book}}\right) \div \left(\text{width of each book}\right)$

$$\left(1\frac{3}{4}\right) (12) \div \left(1\frac{1}{4}\right)$$

$$\frac{7}{4} \cdot \frac{12}{1} \div \frac{5}{4}$$

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

$$\frac{84}{5}$$

$16\frac{4}{5}$

Juan can have 10 shelves on his book case, if they are $1\frac{3}{4}$ ft. wide. Juan can only put 16 books on a shelf.