

# 3<sup>rd</sup> Grade Math:

## Worksheets & Topics

Topics include rounding numbers, area, patterns, fractions, multiplications, long division, word problems, and more.

I. Quick calculations

A)  $16 - 7 =$

$18 - 9 =$

$34 - 21 =$

$71 - 28 =$

B)  $7 \times 3 =$

$8 \times 10 =$

$5 \times 9 =$

$8 \times 8 =$

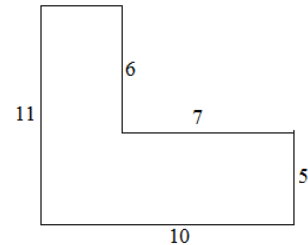
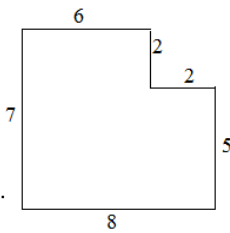
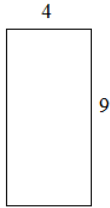
C)  $15 \div 3 =$

$60 \div 6 =$

$32 \div 4 =$

$63 \div 7 =$

II. Find the area and perimeter of the figures



III. Word Problems

A) Matt's scores in math so far are 24, 30, and 39. What is his average?

B) Tina bought a shirt at the store that cost \$25. If the sales tax is 10%, how much did she spend?

C) Tom the cat is 2 feet tall, and Jerry the cat is 30 inches tall. How much taller is Jerry?

D) Mark arrives to school at 11:00am. If it took 34 minutes to walk to school, what time did he leave home?

IV. Rounding numbers

A) 2345: round to the nearest 100s

B) 21,456,879: round to the nearest millions

C) 23.87: round to the nearest tenth

D) 1436.48: round to the nearest 10s

## I. Addition/Subtraction

Fill in the blanks:

1)  $231 + \underline{\quad\quad} = 476$

4)  $2.34 + 1.46 = \underline{\quad\quad\quad}$

2)  $432 - \underline{\quad\quad} = 57$

5)  $3.76 + 11.6 = \underline{\quad\quad\quad}$

3)  $767 - 79 = \underline{\quad\quad\quad}$

6)  $13.46 - \underline{\quad\quad\quad} = 6.51$

## II. Rounding Numbers

Round the following to the nearest place:

1) 73      10's

5) 2.367      tenth

2) 132      10's

6) 23,456      thousand

3) 357      100's

7) 8002      hundreds

4) 642      100's

8) 123.456      hundredth

## III. Multiplication/Division

Fill in the blanks:

1)  $6 \times 8 = \underline{\quad\quad\quad}$

5)  $20 \times 6 = \underline{\quad\quad\quad}$

2)  $3 \times \underline{\quad\quad} = 15$

6)  $11 \times 14 = \underline{\quad\quad\quad}$

3)  $14 \div 2 = \underline{\quad\quad\quad}$

7)  $55 \div \underline{\quad\quad} = 5$

4)  $21 \div \underline{\quad\quad} = 7$

8)  $13 \times \underline{\quad\quad\quad} = 260$

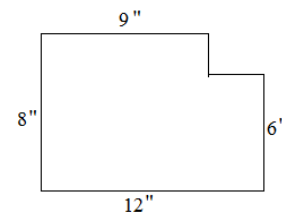
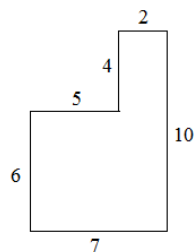
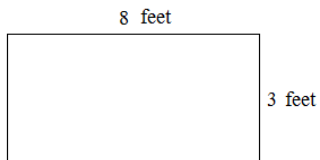
## IV. Word Problems

Answer the following:

- A library room has 7 shelves containing history books. If each shelf has 10 books, how many books are in the room?
- Jim has \$10 to spend on snacks. If each candy bar cost \$2, how many candy bars can he buy?
- An sports arena can hold 12,355 fans. If the team sells 11,245 tickets, how many empty seats will remain on game day?

## V. Area and Perimeter

Find the area and perimeter of each shape:



## I. Quick computation

1) How many stars?

- a) 4
- b) 6
- c) 8
- d) 18

$$\begin{array}{cccc}
 \star & \star & \star & \star \\
 \star & \star & \star & \star \\
 \star & \star & \star & \star
 \end{array}
 -
 \begin{array}{ccc}
 \star & \star & \star \\
 \star & \star & \\
 \star & & 
 \end{array}
 =$$

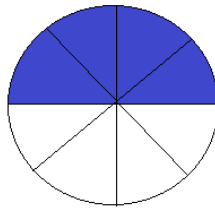
2) Which equation matches the count of triangles?

- a)  $24 - 6$
- b)  $6 \times 4$
- c)  $8 + 3$
- d)  $12 \div 2$



3) Which does NOT represent the blue area?

- a)  $1/2$
- b)  $2/4$
- c)  $3/5$
- d)  $4/8$



## II. Number sequences

1) Which numbers are missing? 23, \_\_\_\_, 33, 38, \_\_\_\_, \_\_\_\_

- a) 28, 43, 48
- b) 28, 43, 53
- c) 28, 48, 58
- d) 28, 48, 53

2) Which numbers are missing? 44, \_\_\_\_, \_\_\_\_, 35, 32, \_\_\_\_

- a) 40, 38, 30
- b) 40, 37, 29
- c) 41, 38, 29
- d) 41, 37, 30

## III. Word Problems

1) John has \$4.50 in his pocket. If he buys a soda for \$1.50 and a snack bar for \$.80, how much money does he have left?

- a) \$1.80
- b) \$2.00
- c) \$2.20
- d) \$2.30

2) Bill works 8 hours each day. How many minutes does he work every day?

- a) 48 minutes
- b) 240 minutes
- c) 480 minutes
- d) 640 minutes

1)  $34 + \underline{\hspace{2cm}} = 91$

- a) 55
- b) 57
- c) 63
- d) 67

2) 5678 rounded to the nearest 100s place is

- a) 5000
- b) 5600
- c) 5680
- d) 5700

3)  $11 \times \underline{\hspace{2cm}} = 132$

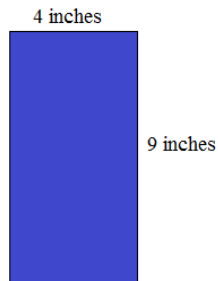
- a) 11
- b) 12
- c) 121
- d) 143

4) A teacher brings 45 small cookies to share equally in school.  
If the class has 4 boys and 5 girls, how many cookies will each student get?

- a) 3
- b) 5
- c) 9
- d) 10

5) The area of the blue rectangle is

- a) 13 square inches
- b) 26 square inches
- c) 36 square inches
- d) 49 square inches



6) The perimeter of the blue rectangle is

- a) 13 square inches
- b) 26 square inches
- c) 36 square inches
- d) 49 square inches

7) A toy costs 14 dollars, plus 2 dollars for tax and shipping.  
If you have a 4 dollar off discount coupon, how much does the toy cost you?

- a) 8 dollars
- b) 12 dollars
- c) 18 dollars
- d) 20 dollars

8) In the number 4567, the \_\_\_\_\_ is in the hundreds place.

- a) 4
- b) 5
- c) 6
- d) 7

Long Division Word Problems

1) A school has 2132 students. If each of the 4 grades has the same number of students, how many are in each grade?

2) A dock has 6455 pounds of fish. If they are loaded equally onto 5 trucks, how much will each truck carry?

3) A toy store has 4674 marbles. If equal amounts are placed in 6 bins, how many marbles are in each bin?

\*\*Reminders:

4) A baker makes cookies every morning. Then, he places them into 8-count boxes. If he has any left-overs, he gives the extras to his dog Chip. If he baked 345 cookies, how many did Chip the dog get?

5) A banquet hall uses tables that seat 8 people. If a wedding reception has 301 people, how many tables will they need? If each table fills all 8 seats, how many people will sit in the remaining table?

Long Division Word Problems

6) 8 friends split a lottery jackpot of \$2,643,800.  
How much did each person win?

7) A tourist goes 2385 miles in 9 days. On average, how far did he  
travel per day?

8) Last season, a football player gained 1876 yards.  
If he averaged 4 yards per carry, how many carries did he have?

9) Find the average (or "mean") of the following 3 numbers:  
2110, 4576, and 3775.

(Note: the 'average' of a set is the sum of the elements  
divided by the number of elements)

10) 'A wordless question':  $\frac{23756}{4} =$

Multiplication practice and applications

I. Table Values

a)  $3 \times 6 =$

b)  $10 \times 4 =$

c)  $8 \times 8 =$

d)  $4 \times 7 =$

e)  $14 \times 10 =$

f)  $5 \times 11 =$

g)  $7 \times 9 =$

h)  $6 \times 6 =$

i)  $2 \times 12 =$

j)  $5 \times 8 =$

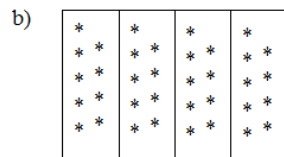
k)  $3 \times 9 =$

l)  $11 \times 7 =$

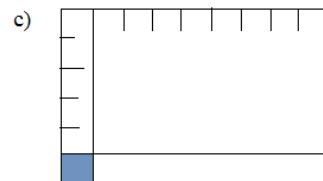
II. Interpreting diagrams

a) & & &      & & &  
     & & &      & & &

How many groups of & sets are there?



How many "snowflakes" are in the image?



The corner square is "one square unit"...  
How many square units is the entire figure?

III. Word Problems

a) A school cafeteria has 8 rows of tables. If each row contains 7 tables, how many tables are there?

Extra Credit: If each table seats 6 students, how many students can sit in the cafeteria?

b) A restaurant charges \$7.50 per sandwich and \$2.00 per soft drink. If a family buys 4 sandwiches and 3 soft drinks, how much does it cost?

c) The perimeter of a square is 36 square inches. What is the area of the square?



What's Next?...

Select the next word or object in the sequence... Then, explain the pattern...

1)    

- The next object is
- a) book
  - b) duck
  - c) girl
  - d) cat

2) Frog  $\Rightarrow$  Jump  
Kangeroo  $\Rightarrow$  Hop  
Fish  $\Rightarrow$  ???




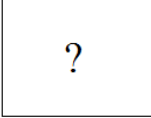
The best comparison is

- a) fin
- b) water
- c) swim
- d) underwater

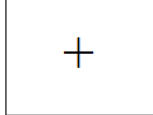


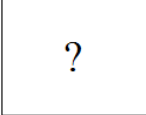
3) cherry  
lemon  
orange

Which should join this group?

- a) grape
- b) flavor
- c) red
- d) ice

4)    

- Which object fits in the group?  
Why?
- a) gift
  - b) balloon
  - c) cart
  - d) egg

5)    

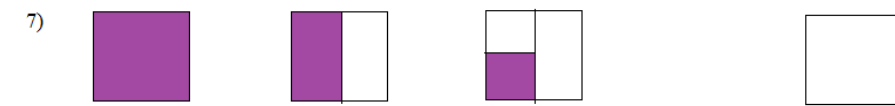
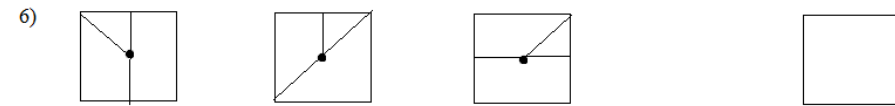
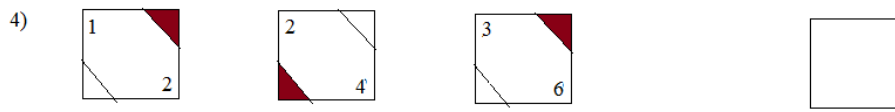
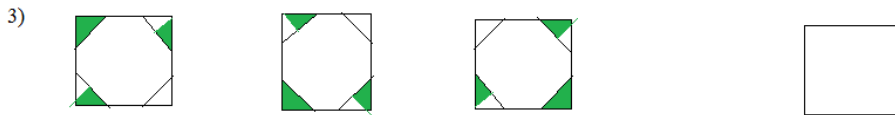
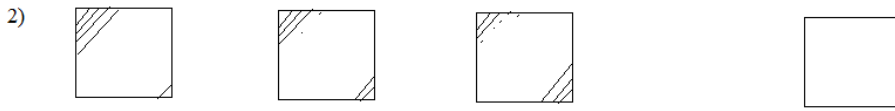
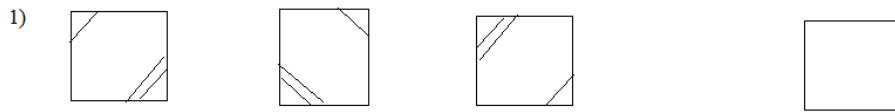
- Which symbol fits?
- a)  $\div$
  - b) %
  - c) \$
  - d) ( )

6)    

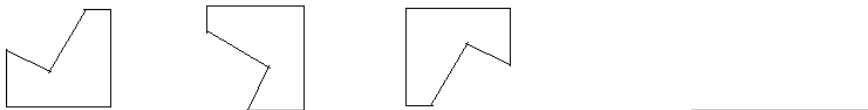
- a) boat
- b) parachute
- c) ferris wheel
- d) block

*Sketch the next...*

Fill in the empty box... Then, explain the pattern...



Draw the next shape...

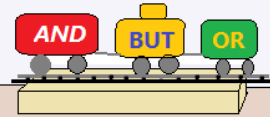


Schoolhouse  
Rock & Roll  
Hall of Fame

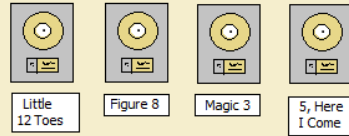


He became a Law

"Conjunction Junction Boxcars"



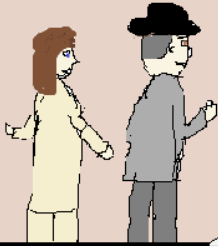
Lolly's  
Adverbs



"Wow, zero my hero..."



'Maybe I'll be up there some day!'



Kids gather around their favorite exhibit...

Idols

ANSWERS-→

### I. Quick calculations

A)  $16 - 7 = 9$

$18 - 9 = 9$

$34 - 21 = 13$

$71 - 28 = 43$

B)  $7 \times 3 = 21$

$8 \times 10 = 80$

$5 \times 9 = 45$

$8 \times 8 = 64$

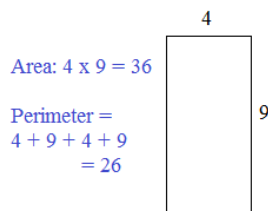
C)  $15 \div 3 = 5$

$60 \div 6 = 10$

$32 \div 4 = 8$

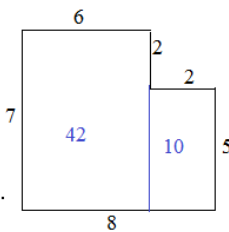
$63 \div 7 = 9$

### II. Find the area and perimeter of the figures



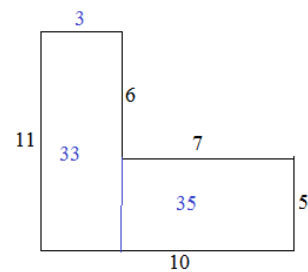
Area:  $42 + 10$   
 $= 52$

Perimeter:  
add up all the  
sides: 30



Area:  $33 + 35$   
 $= 68$

Perimeter:  
add up all the  
sides: 42



### III. Word Problems

A) Matt's scores in math so far are 24, 30, and 39. What is his average?  $24 + 30 + 39 = 93$  Then, 93 divided by 3 = 31

B) Tina bought a shirt at the store that cost \$25. If the sales tax is 10%, how much did she spend?

10% of \$25 is \$2.50... So, total cost is \$27.50

C) Tom the cat is 2 feet tall, and Jerry the cat is 30 inches tall. How much taller is Jerry?

2 feet = 24 inches... Jerry is 6 inches taller..

D) Mark arrives to school at 11:00am. If it took 34 minutes to walk to school, what time did he leave home?

$60 - 34 = 26$ ... so, 10:26 AM

### IV. Rounding numbers

A) 2345: round to the nearest 100s 2300

B) 21,456,879: round to the nearest millions 21,000,000

C) 23.87: round to the nearest tenth 23.9

D) 1436.48: round to the nearest 10s 1440.00

I. Addition/Subtraction

Fill in the blanks:

1)  $231 + \underline{245} = 476$

2)  $432 - \underline{375} = 57$

3)  $767 - 79 = \underline{688}$

4)  $2.34 + 1.46 = \underline{3.80}$

5)  $3.76 + 11.6 = \underline{15.36}$

6)  $13.46 - \underline{6.95} = 6.51$

$$\begin{array}{r} 13.46 \\ - 6.95 \\ \hline 6.51 \end{array}$$

note:  $3 + 11 = 14$ , so the answer should be around 14 or 15... Make sure decimal is in correct place!

$$\begin{array}{r} 3.76 \\ 11.60 \\ \hline 15.36 \end{array}$$

II. Rounding Numbers

Round the following to the nearest place:

- 1) 73      10's              70
- 2) 132    10's                  130
- 3) 357    100's                400
- 4) 642    100's                600

- 5) 2.367    tenth                2.4
- 6) 23,456   thousand            23,000
- 7) 8002    hundreds            8000
- 8) 123.456 hundredth        123.46

III. Multiplication/Division

Fill in the blanks:

1)  $6 \times 8 = \underline{48}$

2)  $3 \times \underline{5} = 15$

3)  $14 \div 2 = \underline{7}$

4)  $21 \div \underline{3} = 7$

5)  $20 \times 6 = \underline{120}$

6)  $11 \times 14 = \underline{154}$

7)  $55 \div \underline{11} = 5$

8)  $13 \times \underline{20} = 260$

note:  $6 \times 2 = 12$ .. then, add a zero

notice:  $10 \times 14 = 140$   
 $1 \times 14 = 14$   
 so,  $11 \times 14 = 154$

IV. Word Problems

Answer the following:

- 1) A library room has 7 shelves containing history books. If each shelf has 10 books, how many books are in the room?

multiplication:  $7 \times 10 = 70$

Step 1: Identify the operation  
 Step 2: Set up the equation  
 Step 3: Solve  
 Step 4: Check work (is the answer reasonable?!?!?)

- 2) Jim has \$10 to spend on snacks. If each candy bar cost \$2, how many candy bars can he buy?

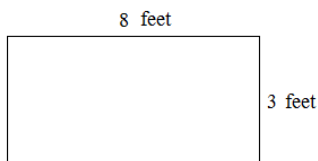
division:  $10 / 2 = 5$  candy bars

- 3) An sports arena can hold 12,355 fans. If the team sells 11,245 tickets, how many empty seats will remain on game day?

subtraction:  $12,355 - 11,245 = 1,110$  empty seats

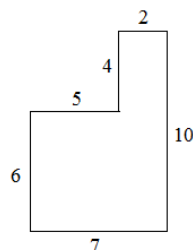
V. Area and Perimeter

Find the area and perimeter of each shape:



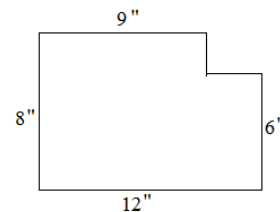
perimeter:  $8 + 3 + 8 + 3 = 22$  feet

area:  $8 \text{ feet} \times 3 \text{ feet} = 24$  square feet



perimeter:  $2 + 4 + 5 + 6 + 7 + 10 = 34$  units

area: 50 square units



perimeter:  $8 + 9 + 2 + 3 + 6 + 12 = 40$  inches

area:  $9 \text{ inches} \times 8 \text{ inches} + 3 \text{ inches} \times 6 \text{ inches}$   
 $72 + 18 = 90$  square inches

## I. Quick computation

1) How many stars?

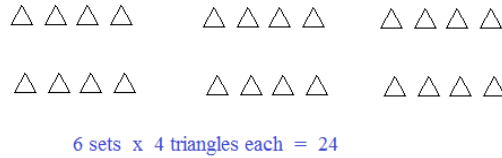
- a) 4  
 b) 6  
 c) 8  
 d) 18

$$4 \times 3 = 12$$



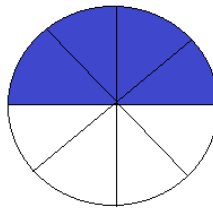
2) Which equation matches the count of triangles?

- a)  $24 - 6$   
 b)  $6 \times 4$   
 c)  $8 + 3$   
 d)  $12 \div 2$



3) Which does NOT represent the blue area?

- a)  $1/2$   
 b)  $2/4$   
 c)  $3/5$   
 d)  $4/8$



$$1/2 = 2/4 = 4/8$$

## II. Number sequences

$$+5 \quad +5 \quad +5 \dots$$

1) Which numbers are missing? 23, 28, 33, 38, 43, 48

- a) 28, 43, 48  
 b) 28, 43, 53  
 c) 28, 48, 58  
 d) 28, 48, 53

$$-3 \quad -3 \quad -3 \dots$$

2) Which numbers are missing? 44, 41, 38, 35, 32, 29

- a) 40, 38, 30  
 b) 40, 37, 29  
 c) 41, 38, 29  
 d) 41, 37, 30

## III. Word Problems

1) John has \$4.50 in his pocket. If he buys a soda for \$1.50 and a snack bar for \$.80, how much money does he have left?

- a) \$1.80  
 b) \$2.00  
 c) \$2.20  
 d) \$2.30

$$4.50 - 1.50 = 3.00$$

$$\text{then, } 3.00 - .80 = 2.20$$

2) Bill works 8 hours each day. How many minutes does he work every day?

- a) 48 minutes  
 b) 240 minutes  
 c) 480 minutes  
 d) 640 minutes

$$8 \text{ hours} \times 60 \text{ minutes/hour} = 480 \text{ minutes}$$

## SOLUTIONS

1)  $34 + \underline{\hspace{2cm}} = 91$

- a) 55  
 b) 57  
 c) 63  
 d) 67

91 minus 34 equals 57

2) 5678 rounded to the nearest 100s place is

- a) 5000  
 b) 5600  
 c) 5680  
 d) 5700

The hundreds place is 6, so  
 either round up or round down...  
 In this case, round up!

3)  $11 \times \underline{\hspace{2cm}} = 132$

- a) 11  
 b) 12  
 c) 121  
 d) 143

$11 \times 11 = 121$

so, 12 is the only other possibility

- 4) A teacher brings 45 small cookies to share equally in school.  
 If the class has 4 boys and 5 girls, how many cookies will each student get?

- a) 3  
 b) 5  
 c) 9  
 d) 10

45 total cookies "divided by" 9 students equals 5 cookies each

5) The area of the blue rectangle is

- a) 13 square inches  
 b) 26 square inches  
 c) 36 square inches  
 d) 49 square inches

$4 \times 9 = 36$

length x width = area

4 inches



9 inches

6) The perimeter of the blue rectangle is

- a) 13 square inches  
 b) 26 square inches  
 c) 36 square inches  
 d) 49 square inches

add up all the sides..

$4 + 9 + 4 + 9 = 26$

- 7) A toy costs 14 dollars, plus 2 dollars for tax and shipping.  
 If you have a 4 dollar off discount coupon, how much does the toy cost you?

- a) 8 dollars  
 b) 12 dollars  
 c) 18 dollars  
 d) 20 dollars

14 plus 2 = 12.... then, 12 minus 4 = 8

8) In the number 4567, the \_\_\_\_\_ is in the hundreds place.

- a) 4  
 b) 5  
 c) 6  
 d) 7

Long Division Word Problems

- 1) A school has 2132 students. If each of the 4 grades has the same number of students, how many are in each grade?

533

$$\begin{array}{r} 0533 \\ 4 \overline{) 2132} \\ \underline{- 0} \\ 21 \\ \underline{- 20} \\ 13 \\ \underline{- 12} \\ 12 \\ \underline{- 12} \\ 0 \end{array}$$

SOLUTIONS

Start with "thousands" place (left to right)..  
Divide...  
We get 0...  
Move to "hundreds" place...  
Divide... 4 into 21..  
"Subtract" 20 from 21...  
Bring down next place ("tens")  
Divide... (Keep track at the top)...  
"Deduct"...

- 2) A dock has 6455 pounds of fish. If they are loaded equally onto 5 trucks, how much will each truck carry?

1291

$$\begin{array}{r} 1291 \\ 5 \overline{) 6455} \\ \underline{- 5} \\ 14 \\ \underline{- 10} \\ 45 \\ \underline{- 45} \\ 05 \\ \underline{- 5} \\ 0 \end{array}$$

(going left to right)  
Start with the "thousands" place.. 6  
Divide... Keep track at the top... 1  
Deduct... -5  
Move to the "hundreds" place...  
(Bring down the next place) 14  
Divide... Keep track at the top... 2  
Deduct... -10  
Move to the "tens" place...  
(Bring down the next place) 45  
Divide... Keep track at the top... 9  
Deduct... -45  
(Bring down the last place) 05  
Divide.... Keep track at the top.. 1  
Deduct.. -5

- 3) A toy store has 4674 marbles. If equal amounts are placed in 6 bins, how many marbles are in each bin?

779

$$\begin{array}{r} 0779 \\ 6 \overline{) 4674} \\ \underline{- 42} \\ 47 \\ \underline{- 42} \\ 54 \\ \underline{- 54} \\ 0 \end{array}$$

\*\*Remainders:

- 4) A baker makes cookies every morning. Then, he places them into 8-count boxes. If he has any left-overs, he gives the extras to his dog Chip. If he baked 345 cookies, how many did Chip the dog get?

The baker made 43 boxes of cookies...  
And, Chip the dog got 1 cookie!

$$\begin{array}{r} 043 \\ 8 \overline{) 345} \\ \underline{- 0} \\ 34 \\ \underline{- 32} \\ 25 \\ \underline{- 24} \\ 1 \end{array}$$

- 5) A banquet hall uses tables that seat 8 people. If a wedding reception has 301 people, how many tables will they need? If each table fills all 8 seats, how many people will sit in the remaining table?

The wedding reception will require  
37 full tables PLUS 1 table with 5 guests..

38 total tables..

$$\begin{array}{r} 037 \\ 8 \overline{) 301} \\ \underline{- 24} \\ 61 \\ \underline{- 56} \\ 5 \end{array}$$



Long Division Word Problems

SOLUTIONS

mathplane.com

- 6) 8 friends split a lottery jackpot of \$2,643,800.  
How much did each person win?

Total: 2,643,800

Divided: 8

Each friend gets  
\$330,475

$$\begin{array}{r}
 330475 \\
 8 \overline{) 2643800} \\
 \underline{- 24} \phantom{00} \\
 24 \phantom{00} \\
 \underline{- 24} \phantom{00} \\
 038 \phantom{00} \\
 \underline{- 32} \phantom{00} \\
 60 \phantom{00} \\
 \underline{- 56} \phantom{00} \\
 40 \phantom{00} \\
 \underline{- 40} \phantom{00} \\
 0
 \end{array}$$

- 7) A tourist goes 2385 miles in 9 days. On average, how far did he travel per day?

265 miles per day

$$\begin{array}{r}
 265 \\
 9 \overline{) 2385} \\
 \underline{- 18} \phantom{00} \\
 58 \phantom{00} \\
 \underline{- 54} \phantom{00} \\
 45 \phantom{00} \\
 \underline{- 45} \phantom{00} \\
 0
 \end{array}$$

- 8) Last season, a football player gained 1876 yards.  
If he averaged 4 yards per carry, how many carries did he have?

The player had 469 carries last season

$$\begin{array}{r}
 0469 \\
 4 \overline{) 1876} \\
 \underline{- 16} \phantom{00} \\
 27 \phantom{00} \\
 \underline{- 24} \phantom{00} \\
 36 \phantom{00} \\
 \underline{- 36} \phantom{00} \\
 0
 \end{array}$$

- 9) Find the average (or "mean") of the following 3 numbers:  
2110, 4576, and 3775.

(Note: the 'average' of a set is the sum of the elements  
divided by the number of elements)

The mean or average of  
the 3 numbers is  
3487

First, find the sum of the  
3 numbers:

$$\begin{array}{r}
 2110 \\
 4576 \\
 + 3775 \\
 \hline
 10461
 \end{array}$$

Then, divide by the  
number of elements (3):

$$\begin{array}{r}
 3487 \\
 3 \overline{) 10461} \\
 \underline{- 9} \phantom{00} \\
 14 \phantom{00} \\
 \underline{- 12} \phantom{00} \\
 26 \phantom{00} \\
 \underline{- 24} \phantom{00} \\
 21 \phantom{00} \\
 \underline{- 21} \phantom{00} \\
 0
 \end{array}$$

- 10) 'A wordless question':  $\frac{23756}{4} = 5939$

$$\begin{array}{r}
 5939 \\
 4 \overline{) 23756} \\
 \underline{- 20} \phantom{00} \\
 37 \phantom{00} \\
 \underline{- 36} \phantom{00} \\
 15 \phantom{00} \\
 \underline{- 12} \phantom{00} \\
 36 \phantom{00} \\
 \underline{- 36} \phantom{00} \\
 0
 \end{array}$$



What's Next?...

SOLUTIONS

Select the next word or object in the sequence... Then, explain the pattern...

1)    

- The next object is
- a) book
  - b) duck
  - c) girl
  - d) cat

Apple,  
Ball,  
Car  
D...

2) Frog  $\Rightarrow$  Jump  
Kangeroo  $\Rightarrow$  Hop  
Fish  $\Rightarrow$  ???

The best comparison is

- a) fin
- b) water
- c) swim
- d) underwater

The actions of each...

a frog jumps, kangaroo hops, and fish swim

3) cherry  
lemon  
orange

Which should join this group?

- a) grape
- b) flavor
- c) red
- d) ice

flavors or fruits...




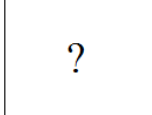
Therefore, grape should join the group...

4)    

Which object fits in the group?  
Why?

- a) gift
- b) balloon
- c) cart
- d) egg

bird  
bear  
box  
balloon... all b's...

5)    

Which symbol fits?

- a)  $\div$
- b) %
- c) \$
- d) ( )

a) division symbol  
all are operations:  
addition, subtraction,  
and multiplication

6)    

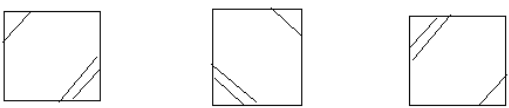

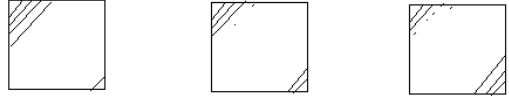

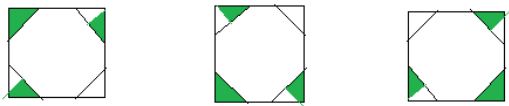
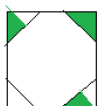
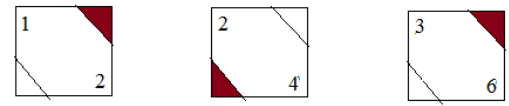
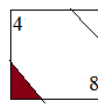
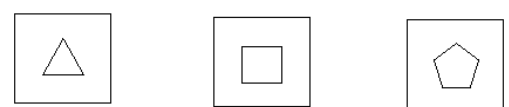
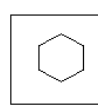
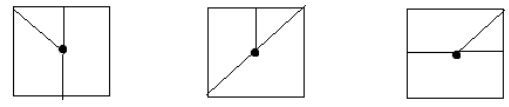
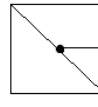


- a) boat
- b) parachute
- c) ferris wheel
- d) block

all are wheels or have  
wheels...

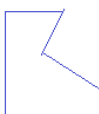
Sketch the next...

SOLUTIONS

Fill in the empty box... Then, explain the pattern...

- 1)   rotating quarter turn clockwise
- 2)   upper left corner -- subtract 1 line  
lower right corner -- add 1 line
- 3)   rotating quarter turn counterclockwise
- 4)   upper left corner -- add 1  
lower right corner -- add 2  
upper right/lower left corners alternate red and white
- 5)   add 1 side to each polygon
- 6)   each "clock arm" is rotating clockwise around the square
- 7)  or  1, 1/2, 1/4, 1/8

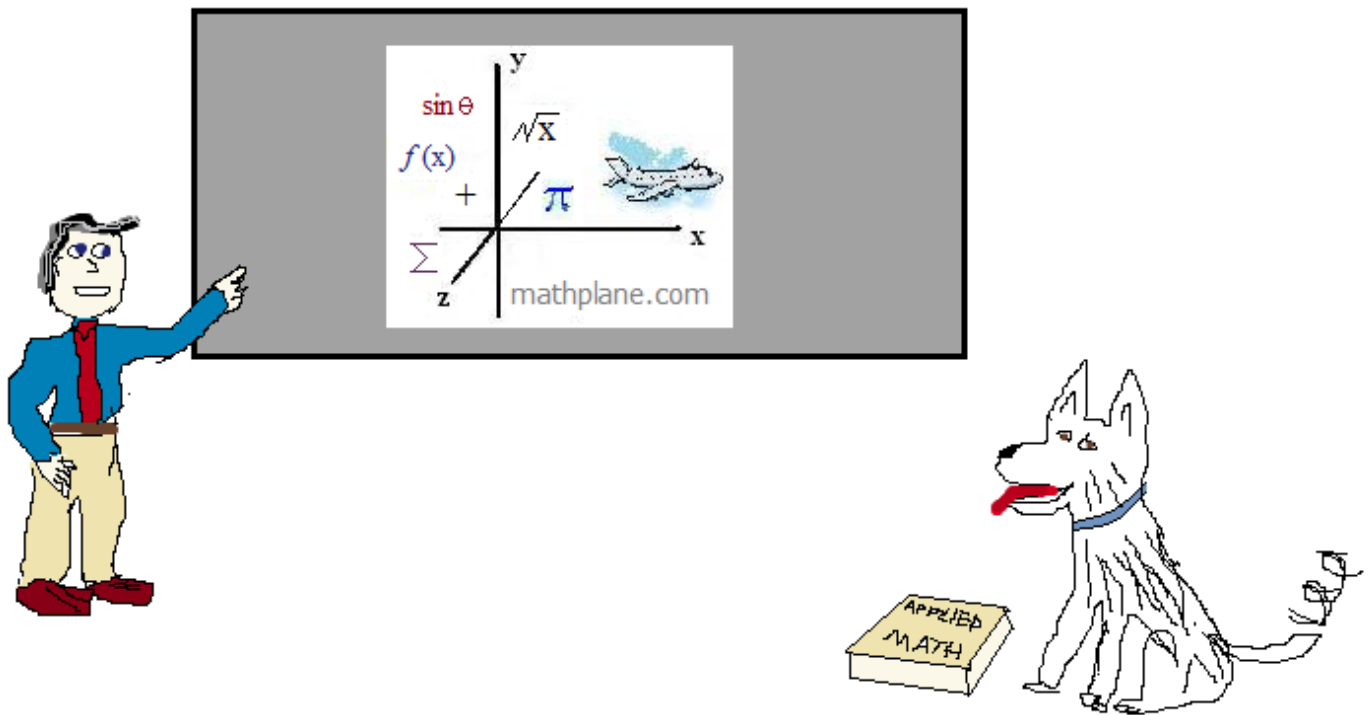
Draw the next shape...

-   rotating 90 degrees clockwise around the center

Thanks for visiting. (Hope it helps!)

If you have questions, suggestions, or requests, let us know.

Enjoy!



Also, Mathplane *Express* for mobile and tablets at [Mathplane.ORG](http://Mathplane.ORG)

And, Mathplane stores at TES and TeachersPayTeachers