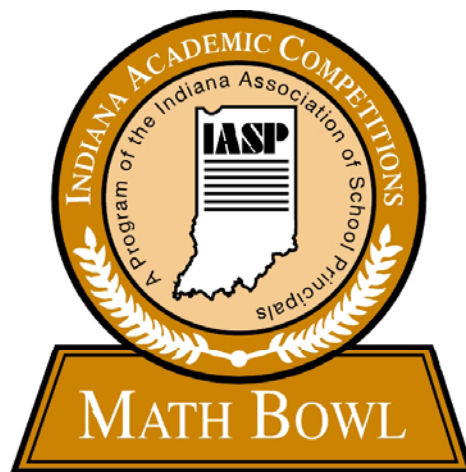


PURDUE
UNIVERSITY

**Indiana Academic
M.A.T.H. Bowl**



Invitational February 2006

Welcome

- Coaches, Proctors, Family, Guests
- Student Participants
- Staff
 - Emcee
 - Timer
 - Score keeper
 - Projection
 - Concessions
 - Site Coordinator

Coaches

Please see program for names of our terrific coaches who give much time to make this contest possible.

Coordinators: you may choose to put names here.

**Begin
Practice
Round**

$$16 + 12 = ?$$

A. 18

B. 14

C. 4

D. 28

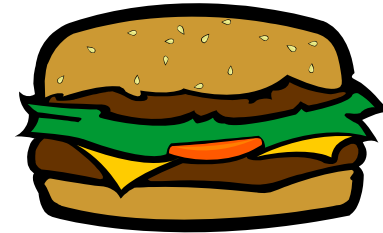
$$16 + 12 = ?$$

D. 28

Begin
Round
One

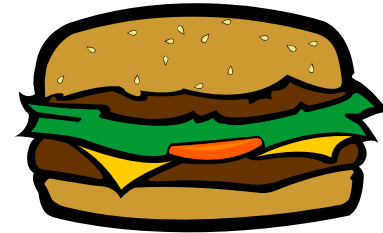
Gus is buying 96
heart-shaped veggie burgers
packed in 4 boxes. How many
burgers are in each box?

- A. 12 burgers per box
- B. 24 burgers per box
- C. 36 burgers per box
- D. 48 burgers per box



Gus is buying 96
heart-shaped veggie burgers
packed in 4 boxes. How many
burgers are in each box?

B. 24 burgers per box



$$\text{Solve } 6x = 138$$

A. $x = 23$

B. $x = 132$

C. $x = 144$

D. $x = 828$

$$\text{Solve } 6x = 138$$

$$\text{A. } x = 23$$

Ken bought 24 golf balls for \$2 each and 100 golf tees for 2¢ each. Which expression represents the total cost in dollars, including 6% sales tax?

A. $24(2) + 100(.02) \times 0.06$

B. $(24 + 100)(2 + .02)(1.06)$

C. $24 \times 2 \times 100 \times 2 \times 0.06$

D. $[24(2) + 100(.02)] \times 1.06$

Ken bought 24 golf balls for \$2 each and 100 golf tees for 2¢ each. Which expression represents the total cost in dollars, including 6% sales tax?

D. $[24(2) + 100(.02)] \times 1.06$

| Branches | World War I | World War II |
|---------------------|--------------------|---------------------|
| Army | 4,057,101 | 11,260,000 |
| Navy | 599,051 | 4,183,466 |
| Marine Corps | 78,839 | 669,100 |
| Coast Guard | 8, 835 | 241,093 |

What is the difference between the total number of people that served in World War I and the total who served in World War II?

A. 4,743,826

B. 16,353,659

C. 11,609,833

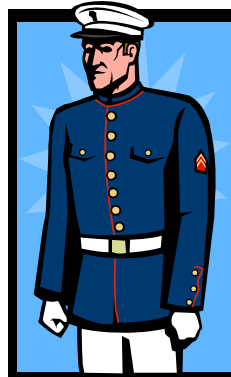
D. 21,097,485

| Branches | World War I | World War II |
|---------------------|--------------------|---------------------|
| Army | 4,057,101 | 11,260,000 |
| Navy | 599,051 | 4,183,466 |
| Marine Corps | 78,839 | 669,100 |
| Coast Guard | 8, 835 | 241,093 |



What is the difference between the total number of people that served in World War I and the total who served in World War II?

C. 11,609,833



The annual pie-eating contest is today.

The results are as follows:

Ryan $1/4$

Emma $6/8$

Erin $1/2$

Jack $2/3$

Kelly $5/6$

List the winners from 1st place eating the most to 5th place eating the least.

A. Kelly, Emma, Jack, Erin, Ryan

B. Ryan, Erin, Jack, Emma, Kelly

C. Emma, Erin, Jack, Kelly, Ryan

**D. Jack, Erin, Emma, Ryan,
Kelly**



The annual pie-eating contest is today.

The results are as follows:

Ryan $1/4$

Emma $6/8$

Erin $1/2$

Jack $2/3$

Kelly $5/6$

List the winners from 1st place eating the most to 5th place eating the least.

A. Kelly, Emma, Jack, Erin, Ryan

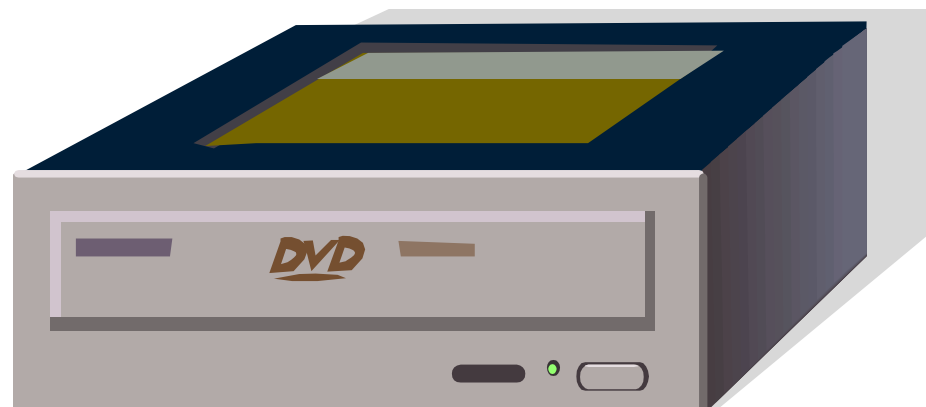


Vickie wants three DVD's. At the Super Store they are marked \$29.99 each or buy 2 and get the third free. At the Discount Store, they are \$19.87 each. Where should she buy her DVD's and why?

- A. At the Super Store, because one DVD is free.
- B. At the Discount Store, because she'll save \$0.37.
- C. At the Super Store, because she'll save \$20.
- D. At either store, because they come out the same.

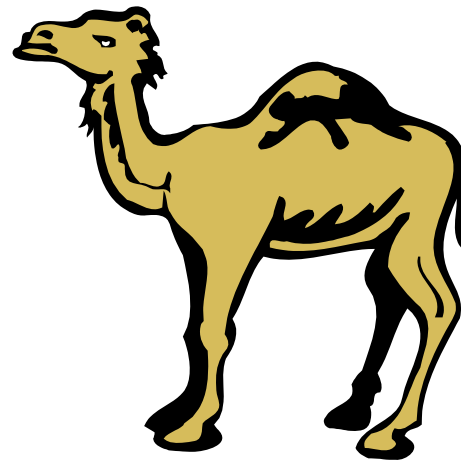
Vickie wants three DVD's. At the Super Store they are marked \$29.99 each or buy 2 and get the third free. At the Discount Store, they are \$19.87 each. Where should she buy her DVD's and why?

B. At the Discount Store, because she'll save \$0.37.



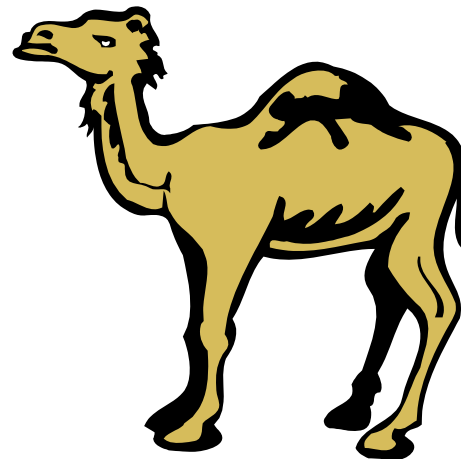
In a camel herd with 80 legs, half of the camels have one hump and half have two humps. How many humps are there in the herd?

- A. 20 humps**
- B. 30 humps**
- C. 60 humps**
- D. 120 humps**



In a camel herd with 80 legs, half of the camels have one hump and half have two humps. How many humps are there in the herd?

B. 30 humps



Begin
Round
Two

What is the decimal form of $2\frac{3}{4}$?

A. 2.75

B. 2.57

C. 2.34

D. 27.5

What is the decimal form of $2\frac{3}{4}$?

A. 2.75

**Mr. Honker picks up 56 students.
Ms. Jolly picks up 82. Ms. Beeper
picks up half as many as Ms.
Jolly. How many riders do the
three drivers pick up in all?**

- A. 56 students**
- B. 82 students**
- C. 41 students**
- D. 179 students**



**Mr. Honker picks up 56 students.
Ms. Jolly picks up 82. Ms. Beeper
picks up half as many as Ms.
Jolly. How many riders do the
three drivers pick up in all?**



D. 179 students

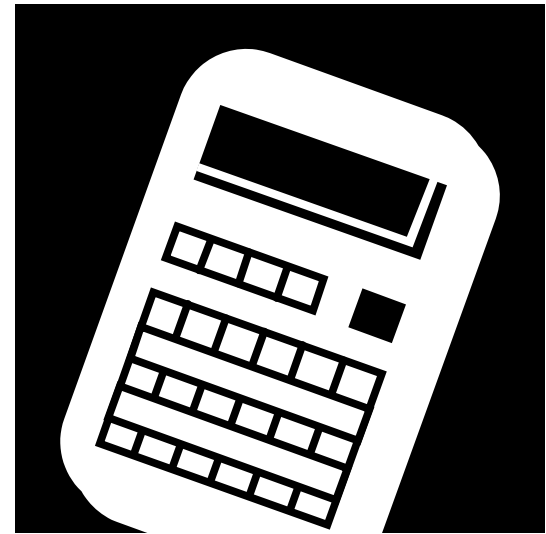
**Which of the following numbers
is not a factor of $3 \times 5 \times 7$?**

A. 15

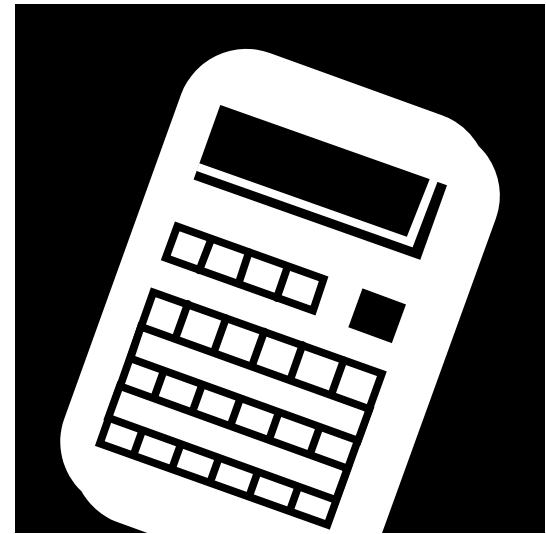
B. 35

C. 21

D. 22



**Which of the following numbers
is not a factor of $3 \times 5 \times 7$?**



D. 22

For a quarter, Travis can play a video game for 5 minutes. How many quarters would he need to play for an hour?

- A. 5 quarters**
- B. 10 quarters**
- C. 12 quarters**
- D. 15 quarters**



**For a quarter, Travis can play a video game for 5 minutes.
How many quarters would he need to play for an hour?**

C. 12 quarters



The average of four 8's and four 16's equals the average of four _____.

A. 12's

B. 24's

C. 48's

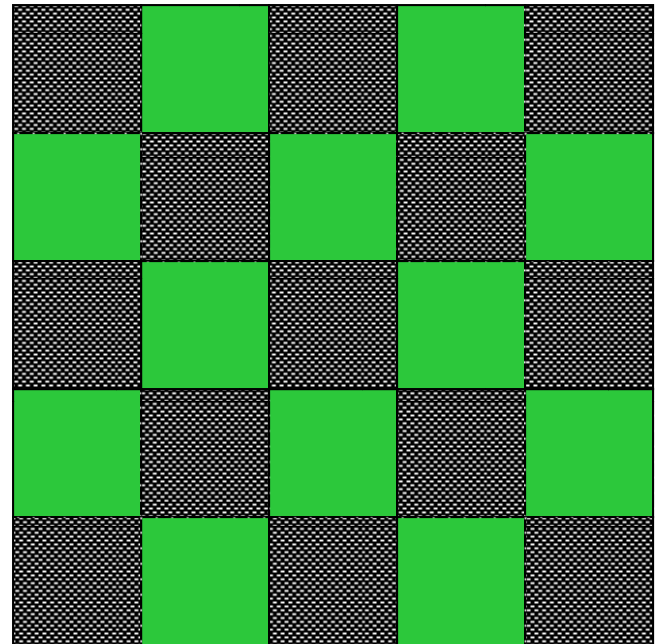
D. 96's

**The average of four 8's and
four 16's equals the average
of four _____.**

A. 12's

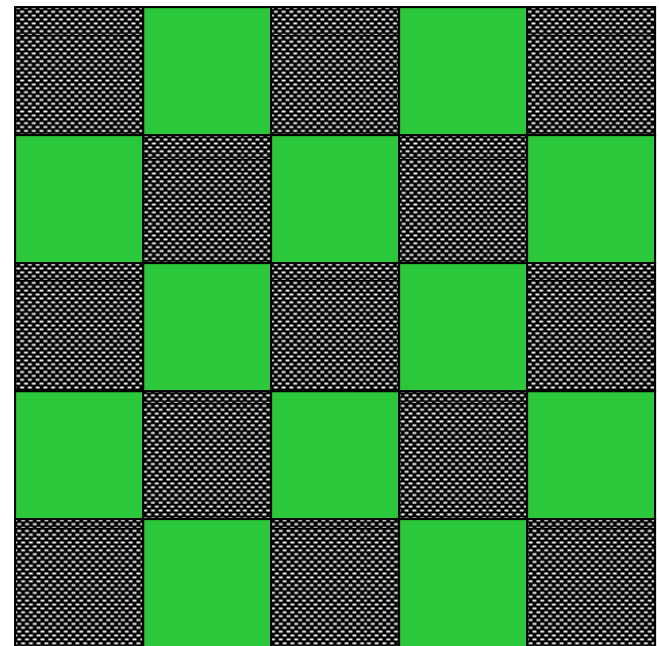
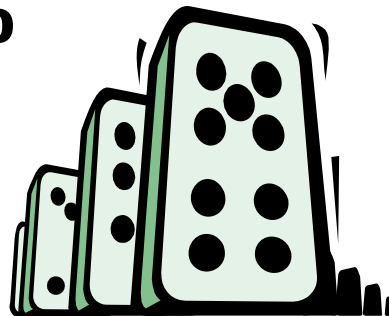
A 5 by 5 grid is colored by alternating black and green squares. One domino completely covers a pair of green and black adjacent squares. What percent of the green will 6 dominoes cover?

- A. 25%**
- B. 48%**
- C. 50%**
- D. 52%**



A 5 by 5 grid is colored by alternating black and green squares. One domino completely covers a pair of green and black adjacent squares. What percent of the green will 6 dominoes cover?

C. 50%



Find the next two terms in the pattern:
 $2 \frac{1}{8}$, $2 \frac{3}{4}$, $3 \frac{3}{8}$, 4, $4 \frac{5}{8}$, _____, _____

- A. 5, $5 \frac{1}{4}$
- B. $5 \frac{1}{2}$, 6
- C. $5 \frac{1}{4}$, $5 \frac{7}{8}$
- D. $5 \frac{1}{8}$, $5 \frac{3}{4}$



Find the next two terms in the pattern:
 $2 \frac{1}{8}$, $2 \frac{3}{4}$, $3 \frac{3}{8}$, 4, $4 \frac{5}{8}$, _____, _____

C. $5 \frac{1}{4}$, $5 \frac{7}{8}$



**Begin
Round
Three**

The temperature was 14° F this afternoon, but is now -9° F. How many degrees has it fallen?

- A. 5 degrees
- B. 6 degrees
- C. 22 degrees
- D. 23 degrees

The temperature was 14° F this afternoon, but is now -9° F. How many degrees has it fallen?

D. 23 degrees

Compute:

$$100 + (100 \times 100) / 100 = \underline{\hspace{2cm}}$$

- A. 2**
- B. 101**
- C. 200**
- D. 400**



Compute:

$$100 + (100 \times 100) / 100 = \underline{\hspace{2cm}}$$

C. 200



In modular arithmetic, we work with the remainders after dividing. What are the remainders when 6 is divided by 3, 7 by 4, and 15 by 3?

- A. 3, 3, 12
- B. 2, 1, 5
- C. 0, 3, 0
- D. all are zero

In modular arithmetic, we work with the remainders after dividing. What are the remainders when 6 is divided by 3, 7 by 4, and 15 by 3?

C. 0, 3, 0

Use $F + V = E + 2$ to find the number of vertices (V) if edges (E) = 24 and faces (F) = 10.

- A. 8
- B. 16
- C. 12
- D. 32

Use $F + V = E + 2$ to find the number of vertices (V) if edges (E) = 24 and faces (F) = 10.

B. 16

You prepare, serve, and clean up dinner starting at 5:20 p.m. and ending at 7:48 p.m. How long did dinner take you?

- A. 28 minutes**
- B. 120 minutes**
- C. 138 minutes**
- D. 148 minutes**



You prepare, serve, and clean up dinner starting at 5:20 p.m. and ending at 7:48 p.m. How long did dinner take you?

D. 148 minutes



Study the pattern of numbers. Which term is incorrect? What should it be?

$1/3, 2/6, 3/9, 4/12, 5/15, 6/20, 7/21, 8/24...$



A. $4/12, 5/16$

B. $5/15, 7/21$

C. $6/20, 6/18$

D. $7/21, 8/21$

Study the pattern of numbers. Which term is incorrect? What should it be?

$1/3, 2/6, 3/9, 4/12, 5/15, 6/20, 7/21, 8/24...$



C. $6/20, 6/18$

Edward is reading Holes. The product of the two consecutive pages he read today is 20,306. What is the lower page number?

A. 284

B. 283

C. 142

D. 71

Edward is reading Holes. The product of the two consecutive pages he read today is 20,306. What is the lower page number?

C. 142

**Begin
Round
Four**

Which list contains only composite numbers?

A. 3, 8, 17, 11

B. 4, 16, 59, 285

C. 13, 17, 29, 51

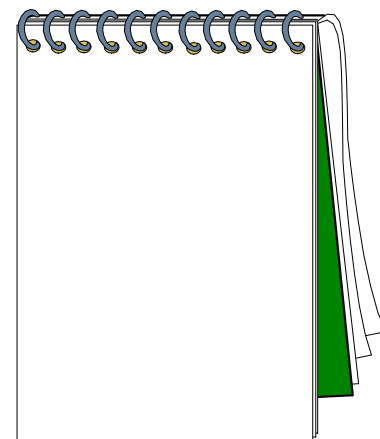
D. 9, 15, 57, 169

**Which list contains only
composite numbers?**

D. 9, 15, 57, 169

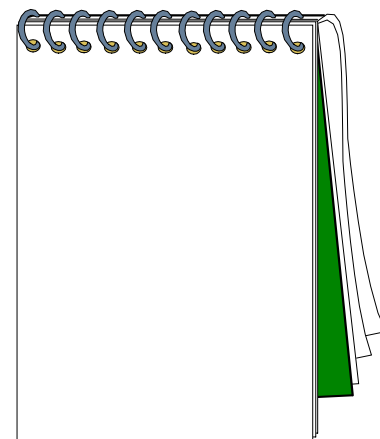
Jenna found 34 new pads of paper, each with the same number of sheets. Which of the following could NOT be the total number of sheets?

- A. 1,190 sheets**
- B. 1,700 sheets**
- C. 1,800 sheets**
- D. 1,768 sheets**



Jenna found 34 new pads of paper, each with the same number of sheets. Which of the following could NOT be the total number of sheets?

C. 1,800 sheets



What is the least common denominator for $11/21$ and $4/9$?

- A. 3
- B. 30
- C. 63
- D. 189

What is the least common denominator for $11/21$ and $4/9$?

C. 63

$$\frac{96}{144} = \frac{x}{21}$$

A. $x = 1.4$

B. $x = 7$

C. $x = 14$

D. $x = 31.5$

$$\frac{96}{144} = \frac{x}{21}$$

C. $x = 14$

What is the sum of the first five
prime numbers?

A. 18

B. 28

C. 37

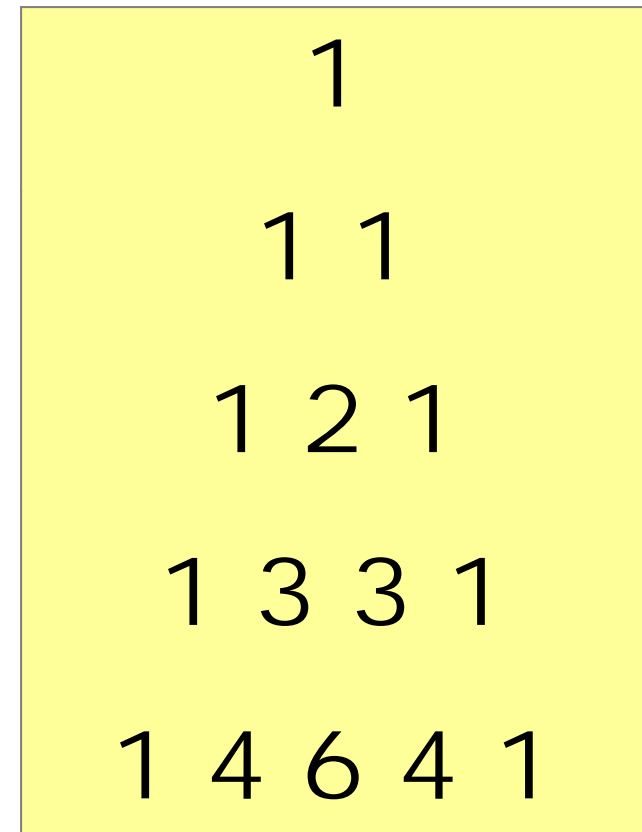
D. 39

What is the sum of the first five
prime numbers?

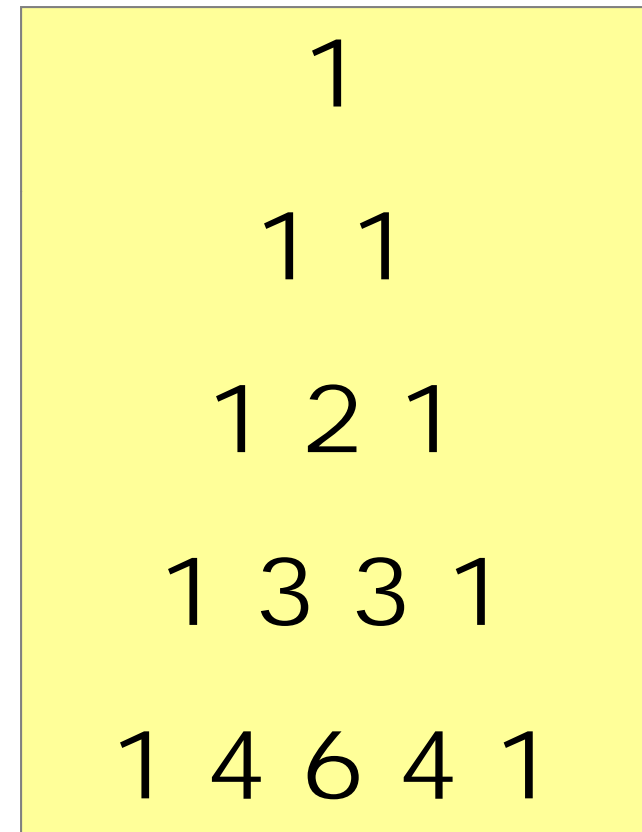
B. 28

In each row of Pascal's Triangle, describe the entry next to the ones.

- A. One more than row number
- B. Increases by one each row as you move up
- C. Sum of row above
- D. None of the above



In each row of Pascal's Triangle, describe the entry next to the ones.



D. None of the above

Your best friend told you that this year, he is two times as old as his little brother. However, four years ago he was four times as old as his brother. How old is your best friend now?

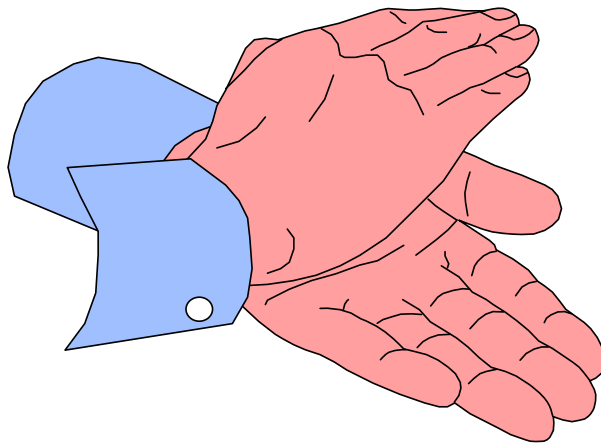
- A. 6 years old**
- B. 8 years old**
- C. 12 years old**
- D. 16 years old**

Your best friend told you that this year, he is two times as old as his little brother. However, four years ago he was four times as old as his brother. How old is your best friend now?

C. 12 years old

Thanks for your support of all our
mathletes.

We pause now for a short intermission to
allow the scorekeepers to tabulate final
results.



**Begin
Round
Alternate**

What are the place values of the 6's in 68,054.68?

- A. thousand and hundredth
- B. ten thousand and hundredth
- C. ten thousand and tenth
- D. hundred and thousandth

What are the place values of the
6's in 68,054.68?

C. ten thousand and tenth

The numbers 345 and 123 are in base 6. What is their sum in base six?

- A. 512**
- B. 468**
- C. 1012**
- D. 472**

**The numbers 345 and 123 are in
base 6. What is their sum in
base six?**

A. 512

Count by 1.16

A. 2.58 3.74 4.9 6.5 ...

B. 258 374 490 606 ...

C. 11.24 12.4 14.86 16.2 ...

D. 1.24 2.4 3.56 4.72 ...

Count by 1.16

D. 1.24 2.4 3.56 4.72 ...

Allison rides her new red bike $27\frac{1}{2}$ miles in 2 hours 45 minutes. Which is not a way to express her average speed?

- A. $27.5 \div 2.45$ miles/hour
- B. 27.5 miles \div 2.75 hours
- C. $27.5/2.75$ miles/hour
- D. 10 miles/1 hour

Allison rides her new red bike $27\frac{1}{2}$ miles in 2 hours 45 minutes. Which is not a way to express her average speed?

A. $27.5 \div 2.45$ miles/hour

Which reason below is not consistent with proper order of operations?

| | |
|----------------|--------------------|
| $7(4 + 2) - 3$ | Given |
| $7(6) - 3$ | Grouping symbols |
| $42 - 3$ | Work left to right |
| 39 | Subtraction |

- A. Grouping Symbols
- B. Work left to right
- C. Subtraction
- D. There is no multiplication sign.

Which reason below is not consistent with proper order of operations?

$$7(4 + 2) - 3 \quad \text{Given}$$

$$7(6) - 3 \quad \text{Grouping symbols}$$

$$42 - 3 \quad \text{Work left to right}$$

$$39 \quad \text{Subtraction}$$

B. Work left to right

Twelve coins, all nickels and dimes, are worth \$1.00 all together. How many of the coins are nickels?

- A. 2 nickels**
- B. 4 nickels**
- C. 6 nickels**
- D. 8 nickels**



Twelve coins, all nickels and dimes, are worth \$1.00 all together. How many of the coins are nickels?

B. 4 nickels



If it takes 1 block to build 1 step, 3 blocks to build 2 steps, and 6 blocks to build 3 steps, how many blocks are needed to make 6 steps?

- A. 10 blocks**
- B. 15 blocks**
- C. 21 blocks**
- D. 28 blocks**

If it takes 1 block to build 1 step, 3 blocks to build 2 steps, and 6 blocks to build 3 steps, how many blocks are needed to make 6 steps?

C. 21 blocks