

11/18

Math Olympias #1

4^2 (squared) $4 \cdot 4$
 exponents

4^3 ($4 \times 4 \cdot 4$)

4^7 ($4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4 \cdot 4$)

perfect square:

The square root is an actual whole number.

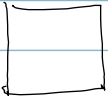
81 (9×9) 100 (10×10)
 4 (2×2)

Square root

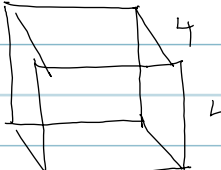
* # =

every # has a square root

$\sqrt{17}$

 4 4^2
 4

area



4^3

volume

squared

cubed

$4 \cdot 4$

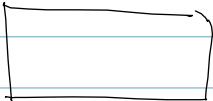
4^2

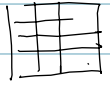
5×5

5^2

6×6

6^2

 4
 6

 4 = 16
 4

array

1 exponent
 power of 2

7^2

81^2

9^2

16^2

cubed

7^3

9^3

Value = worth
or (inclusive)

x or y

x, y, both

~~1 to 10~~

$$1 + 2 + 3 \dots 10$$

digit

division rule 3s

number 7302

if sum of the digits
is divisible by 3

counting numbers (1, 2, 3, 4, 5, ..., ∞)
whole numbers (0, 1, 2, 3, 4, 5)

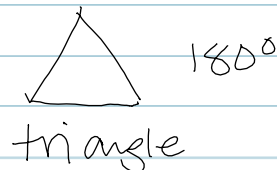
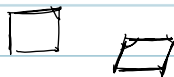
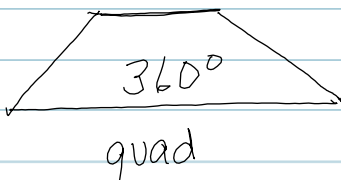
integers all ^{rational} counting # and 0 + their
opposites

a is divisible by b
7302 \div 3 (no remainder)

prime # (1st prime is 2 special only even # prime)

with exactly 2 factors = prime
1, itself

more than (at least 3) factors = composite



prime factors

$$144 = 12 \times 12 = 2 \times 72$$

$$3 \times 48$$

$$4 \times 36$$

$$6 \times 18$$

$$16 \times 9$$

$$\begin{array}{c} \textcircled{144} \\ / \quad \backslash \\ 2 \times 12 \\ / \quad \backslash \quad / \quad \backslash \\ 3 \times 4 \times 3 \times 4 \\ / \quad \backslash \quad / \quad \backslash \\ 3 \times 2 \times 2 \times 3 \times 2 \times 2 \end{array}$$

$$144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$144 = 2^4 \cdot 3^2$$

GCF LCM (multiples never end)
 set amount

$$\begin{array}{ccc} 3 & 12 & 12 \\ (1, 3) & (1, 2, 3, 4, 12) & (1, 2, 3, 4, 6, 12) \end{array}$$

factors - "go into" the number

multiples - "count by that number" "times tables"

Order of Operations

P E M D A S

simple fraction	$\frac{3}{4}$
complex fraction	$\frac{5}{\frac{1}{2}}$

ratio

$$4 + (8 \times 3) + (8 - 1)$$

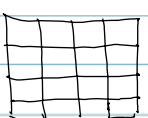
$$4 + (8 - 1) + (8 \times 3)$$

$$4 + 7 + 24$$

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

$$\frac{44}{11}$$

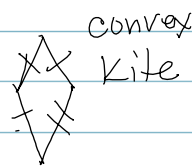
$$\frac{4}{8} = \frac{1}{2}$$

Area -  4 16 sq units

~~Perimeter~~ Perimeter

() convex

~~Perimeter~~ ~~concave~~ concave



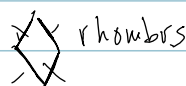
convex
kite

$$\triangle = 180^\circ$$

$$\square = 360^\circ$$

$$\square = 540^\circ$$

quad



rhombus

$$\square = 360^\circ$$

$$\square = 360^\circ$$

$$\square = 360^\circ$$



concave kite

$$\triangle = 360^\circ$$

Math Olympiad

\$bucks for each correct

\$ extra bucks HPass (top score) HPass perfect score

5 perfect score

(more than one) = whole get HP

Anybody scores 3 or more = CANDY !

average = mean

mode

median

1, 2, 4, 6


median = 3

1, 2, 2, 6

median = 2

1, 2, 3, 6

median = 2.5

 90° right (1st quarter)

greater than 0° , less than 90° = acute
"waxing crescent"

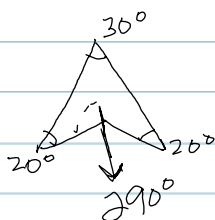
greater than 90° , less than 180° = obtuse
"waxing gibbous"

180°



straight angle

greater than 180° but less than 360° = reflexive angle



360°

Practice

1A

$$(87-76) + (65-54) + (43-32) + (21-10)$$

$$11 + 11 + 11 + 11 = 44$$

Par.

Exp.

M & D (left to right)

A + S (left to right)

1B

• chose 5 #

largest sum

4, 5

not use any other cons.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10

= 29

1D

