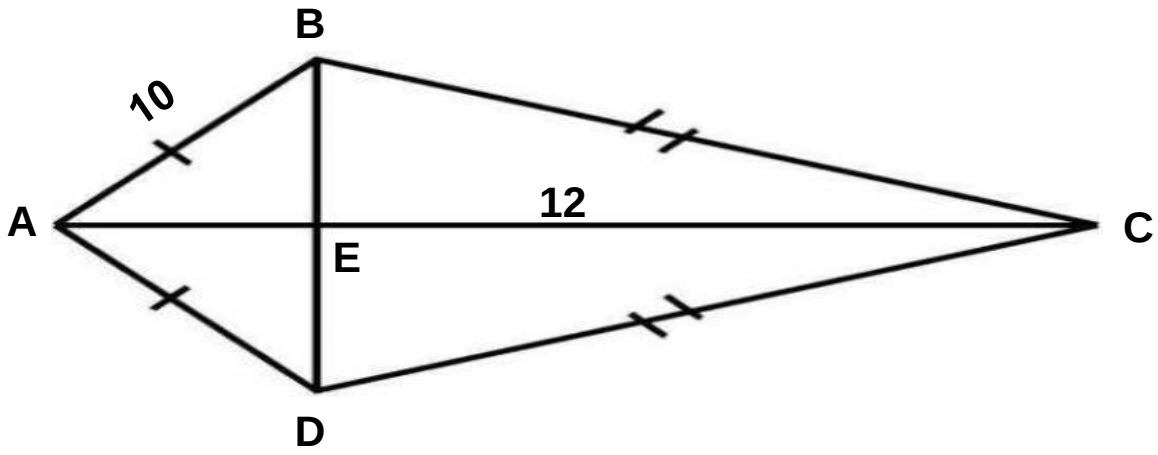
Team # _____

Question #1
2 minutes, 2 points

Problem 1 **2 points** **2 minutes**

Given: Kite ABCD, Triangle ABD is equilateral, AB = 10, EC = 12

Find the <u>perimeter</u> of the kite ABCD.



Answer: _____ units

Team # _____

Team # _____

Question #2
2 minutes, 2 points

Problem 2 **2 points** **2 minutes**

The array below holds the number of pencils each student in one classroom used in a fortnight.

What is the **range** of pencils used by the students?
What is the **median** of the pencils used by the students?
What is the **mode** of the pencils used by the students?

7	9	4	2	6	5
5	3	9	7	7	3
7	6	4	2	1	10
3	4	5	4	8	12
8	2	6	4	3	6
3	4	9	8	4	2

Answers:

Range = _____

Median = _____

Mode = _____

Team # _____

Team # _____

Question #3
1 minute, 1 point

Problem 3 **1 point** **1 minute**

The ratio of cut lengths on a board is 3:4:5. If the board is 8 ft. long, **what are the cut board lengths in inches**?

Answers:

_____inches

_____inches

_____inches

Team # _____

Team # _____

Question #4
2 minutes, 2 points

Problem 4 **2 points** **2 minutes**

What is the greatest common factor (GCF) of 168 and 1008?

Answer: $GCF_{168,\ 1008}$ = _____

Team # _____

Team # _____

Question #5
1 minute, 1 point

Problem 5 **1 point** **1 minute**

Express the following numbers in **Scientific Notation**. Show answers below:

405 g = _____ x 10 ---

8,300,000 km = _____ x 10 ---

0.00274 ml = _____ x 10 ---

Team # _____

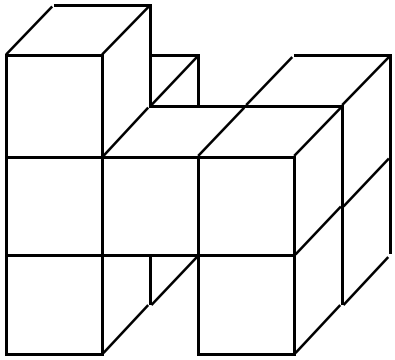
Team # _____

Question #6
3 minutes, 3 points

Problem 6 **3 points** **3 minutes**

The figure below represents a structure comprised of unit cubes.

How many cubes are there?
What is the surface area of this structure?



Answers:

# of cubes: _____

Surface Area:_____ sq. units

Team # _____

Team # _____

Question #7
2 minutes, 2 points

Problem 7 **2 points** **2 minutes**

The graph indicates the water level in a storage tank over a period of hours.

What is the **rate of change**? _____

What does the **slope** of the line in this graph **mean**?

_____

_____

What is the **y-intercept**? (____, ____)

What is the **x-intercept**? (____, ____)

Team # _____

Team # _____

Question #8
2 minutes, 2 points

Problem 8 **2 points** **2 minutes**

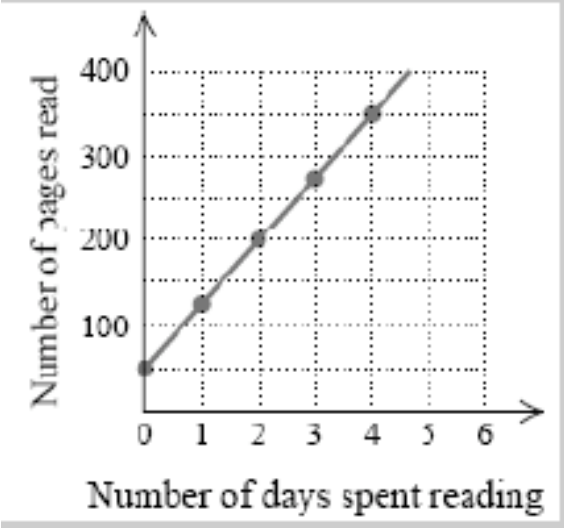
Using the graph below:

Write an equation for the line in this graph.

Let p = # of pages read

d = # of days

How many pages would be read in 11 days?



(ongeslaprodukties.nl , 2016)

Answers:

Equation: _____

_____ pages

Team # _____

Team # _____

Question #9
3 minutes, 3 points

Problem 9 **3 points** **3 minutes**

On a walking trail, Marco passed each of the following at different points along his walking trail: a dog, a bicycle, a skateboard, a boy, a girl, and a bench.

How many different ways could all these items have been passed?

Among these items, how many different ways might Marco have encountered any three of these items?

Answers:

Different Ways: _____

Different Ways for 3 items:_____

Team # _____

Team # _____

Question #10
3 minutes, 3 points

Problem 10 **3 points** **3 minutes**

Out on the flat Prairie Plains of Kansas, Alexandria walked 4 km North from her house, then she turned and walked 7 km West. Upon arriving at her Western most location, Alexandria noticed it was 3:23 pm. Wishing to return to her house as soon as possible, Alexandria walked directly back.

How far did Alexandria walk on her return home (to the nearest km)?

If Alexandria walked at a pace of 5 km/h, what time did she arrive home?

Assume: There were no obstacles in her way. She did not pause significantly at any of her end points en route.

Answers:

_____km

Time:_____

Team # _____

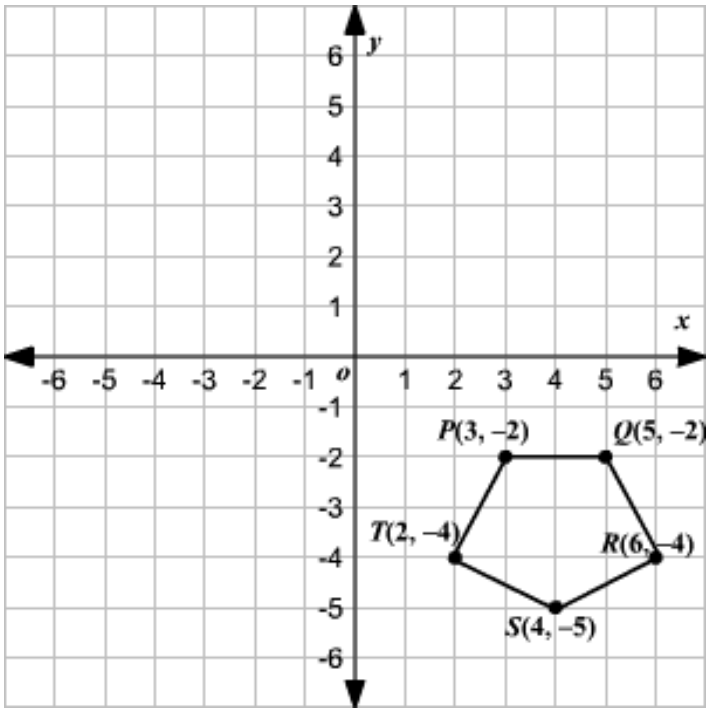
Team # _____

Question #11
1 minute, 1 point

Problem 11 **1 point** **1 minute**

Both answers must be present:

Reflect the preimage Pentagon PQRST **over the x axis**. **Write the coordinates of each image point: P', Q', R', S', and T' below.**



Answers:

P' (___, ___), Q'(___, ___), R'(___, ___),

S'(___, ___), and T'(___, ___)

Team # _____

Team # _____

Question #12
2 minutes, 2 points

Problem 12 **2 points** **2 minutes**

The decimal $5.2857142857142\overline{\ldots}$ (a.k.a. $5.285714\overline{}$) can be expressed as a Mixed Number, $A\frac{B}{C}$ in lowest terms.

Find the mixed number.
Find A + B + C.

Answers:

Mixed Fraction: _____

A + B + C = _____

Team # _____

Team # _____

Question #13
1 minute, 1 point

Problem 13 **1 point** **1 minute**

Solve for g.

$$\frac{g-11}{4}+3=11$$

Answer: g = _____

Team # _____

Team # _____

Question #14
2 minutes, 2 points

Problem 14 **2 points** **2 minutes**

Find the original price.

On Sale!
Your own Flagszrik!!
Only $139.99!!!

This is a 24% savings off
the Original Manufacturers Suggested Retail Price
(MSRP)!!!!

Answer: Original Price: _____

Team # _____

Team # _____

Question #15
2 minutes, 2 points

Problem 15 **2 points** **2 minutes**

Write an equation for the relationship below.

Determine the output when x = 20.

x	y
1	-1
2	2
3	5
4	8
20	?

Answers:

Equation: _____

Output value: _____

Team # _____

Team # _____

Question #16
3 minutes, 3 points

Problem 16 **3 points** **3 minutes**

Simplify the exponent problems. All exponents must be positive. Write your answers below. *Note: All answers must be correct for credit.*

$y^2 (y^2) (y^2) =$ _____

$ab (a^2b^3)(ab^2)^2 =$ _____

$\frac{m^{-4}}{m^7} =$ _____

if $p^4 = 256$; p = _____ and _____

if $k^3 = -343$; k = _____

"Nine to the 3/2 power" $9^{\frac{3}{2}} =$ _____

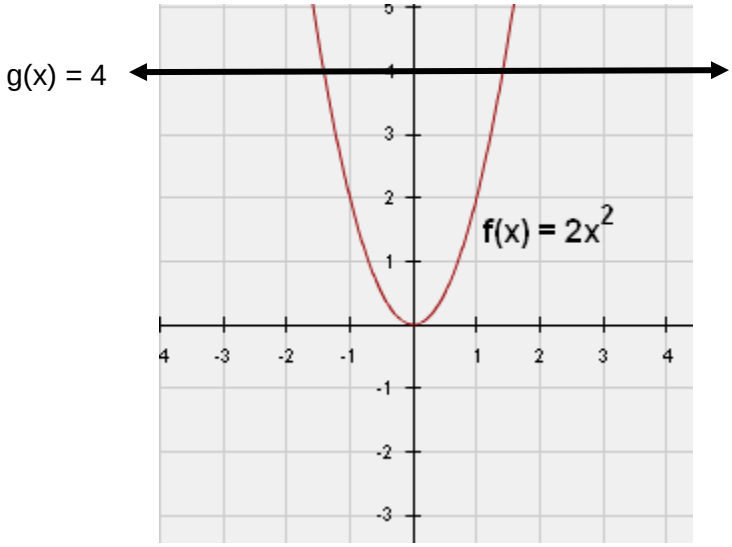
Team # _____

Team # _____

Question #17
2 minutes, 2 points

Problem 17 **2 points** **2 minutes**

Given the graphs: $y = 2x^2$ and $y = 4$



Find the points of intersection of the parabola and the line *(exact values only).*

Answers:

_____ and _____

Team # _____

Team # _____

Question #18
1 minute, 1 point

Problem 18 **1 point** **1 minute**

Solve the quadratic: $2x^2 - 3x - 6 = 0$

(exact values only)

Hint: $x = \dfrac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Answers:

_____ and _____

Team # _____

7-8TH Grade MATHLETICS ANSWERS 2016

1) **46**
2) **range = 11; median = 5; mode = 4**
3) **24, 32, 40**
   3x + 4x + 5x = 96 x = 8
4) **$GCF_{168, 1008}$ = 2*2*2*3*7 = 2^3*3*7 = 168**
   Prime Factorization: 168 = 2*2*2*3*7 = 2^3*3*7
   Prime Factorization: 1008 = 2*2*2*2*3*3*7 = 2^4*3^2*7
5) **405 g = 4.05 x 10^2 g**
   8,300,000 km = 8.3 x 10^6 km
   0.00274 ml = 2.74 x 10^{-3} ml =
6) **10 cubes; Surface Area = 37 square units**
7) **-14 ft / 7 hr = -2 feet / hr**
   The slope means that the water level in the tank is going down 2 feet per hour. = -2 (ft / hr)
   y-int = (0,14); x-int = (7,0)
8) **p = 75 d + 50; 875 pages read in 11 days**
9) **Fundamental Counting Principle: 6 items passed = 6! = 720 possible orders for those 6 items to have been passed.**
   6! / 3! = 6 * 5 * 4 = 120 ways to have seen the 4 items.
10) **Walking distance <u>home</u> = 8 km;**
    Time = 8/5 = 1.6 hr → 0.6 hr = 36 minutes
    Arrival time 3:23 + 1 hour, 36 min = 4:59 *(just in time for supper!)* ☺

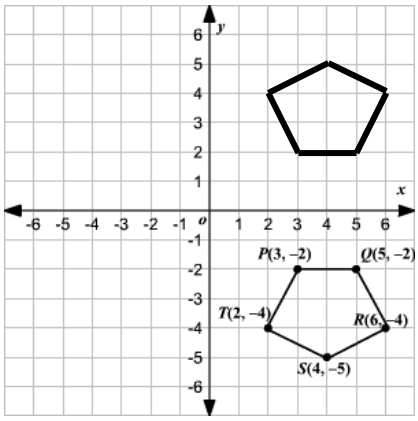
11) 

Image Pts: P'(3,2), Q'(5,2), R'(6,4), S'(4,5), T'(2,4)

12) **Mixed #: 5 2/7**

A + B + C = 5 + 2 + 7 = 14

5.285714285714..

13) **g = 43**

14) **msrp = $184.20 (give +/- 1cent)**

15) **y = 3x – 4 When x = 20, then y = 56**

16) **y^6**

a^5b^8

$\frac{1}{m^{11}}$

p = -4 and 4

k = -7

27

17) **Pts. of intersection:** $(-\sqrt{2}, 4)$ **and** $(\sqrt{2}, 4)$

18) **x = $\frac{3 \pm \sqrt{57}}{4}$** **Should separate the answers.**

$\frac{3+\sqrt{57}}{4}$ **and** $\frac{3-\sqrt{57}}{4}$