#4 WORK OF THE WEEK (Gr 8)

Due Thurs.,May 7th

I) Use the Order of Operations to solve each:

Remember, across the globe - it has been agreed upon that this is to be the order in which these sort of mathematics questions are to be completed.

Brackets (5 + 3) = 8
Exponents $7^2 = 49$
Division $55 \div 5 = 11$ } These should be done in the order they appear.
Multiplication 13 x 2 = 26 }
Addition 17 + 7 = 24 } These should be done in the order they appear.
Subtraction 9 - 11 = -2 }

Examples:

$12 + 3^2 \times 5 - 7$

$12 + 9 \times 5 - 7$

$12 + 45 - 7$

$\boxed{50}$

$4 \times (7+4) - 10 + 6 \div 3$

$4 \times 11 - 10 + 6 \div 3$

$44 - 10 + 6 \div 3$

$44 - 10 + 2$

$\boxed{36}$

$14 \times [\{(3+4) \times 5\} - 10^2 \div 20] + 8$

$14 \times [\{ 7 \times 5\} - 10^2 \div 20] + 8$

$14 \times [35 - 10^2 \div 20] + 8$

$14 \times [35 - 100 \div 20] + 8$

$14 \times [35 - 5] + 8$

$14 \times 30 + 8$

$420 + 8$

$\boxed{428}$

*** There are some steps that can be simultaneously, but it is safer to take your time and do one step at a time. ***

Note also,

That SQUARE ROOT is basically another way to write a fractioned EXPONENT, so it should be completed directly after brackets. $\sqrt{81} = 81^{\frac{1}{2}}$

a) $24 \div (16 - 14)^2 - 2^2$

b) $[3 + (7 - 3^2) + 4^2 \div 8]$

c) $15^2 + \sqrt{100} \times (121 + \frac{1}{2})$

d) $\{ 14 + 11(5 + \sqrt{16}) + 10 - 3^2 \}$

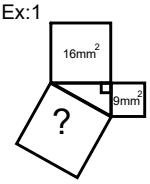
e) $155 - 13^2 + (8 \times 4 + 3^2 - 4^2)^2$

II) A little taste of the Pythagorean Theorem

Pythagorus said that in a right angle triangle, there is a relationship between the areas of the imaginary squares that could be drawn off of the sides of the triangle. In short, it states that the sum of the areas of the squares built off of the 2 legs must be the same as the area of the square built off of the longest side (hypotenuse).

Determine the unknown area(the "?"). Be careful of question d).

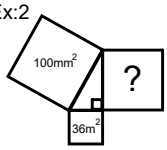
Ex:1



Area of small square + Area of small square = Area of large square

$16mm^2 + 9mm^2 = \boxed{25mm^2}$

Ex:2

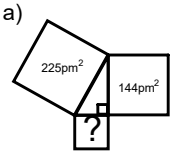


Area of small square + Area of small square = Area of large square

Area of large square - Area of small square = Area of small square

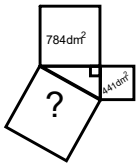
$100mm^2 - 36m^2 = \boxed{64mm^2}$

a)



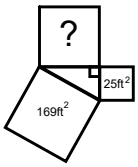
Area of small square + Area of small square = Area of large square

b)



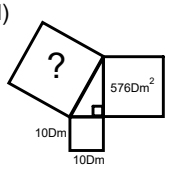
Area of small square + Area of small square = Area of large square

c)



Area of small square + Area of small square = Area of large square

d)

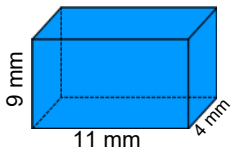


Area of small square + Area of small square = Area of large square

** We'll get into more challenging Pythagorean Theorem questions next week. **

III) Determine the volume of each prism

Ex



$V = A_b H$ ⟵ This states that the volume is equal to the area of the base (A_b) multiplied by the height (H) of the prism.

$= L \times W \times H$

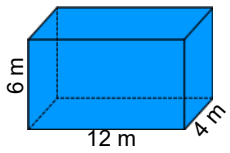
So, we first need to determine the area of the base (A_b). In this case, since it is a rectangle the area is length x width.

$=(11mm)(4mm)(9mm)$

$=(44\ mm^2)(9mm)$

$V = 396\ mm^3$ ⟵ Notice the units are cubed.

a)

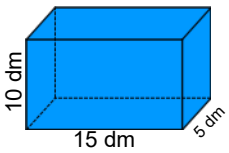


$V = A_b H$

$= L \times W \times H$

$=$

b)

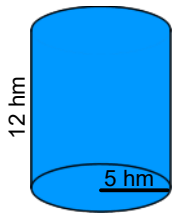


$V = A_b H$

$= L \times W \times H$

$=$

c)

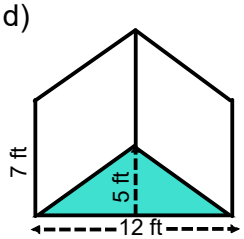


$V = A_b H$

$= \pi r^2 \times H$

$=$

d)



$V = A_b H$

$= \frac{bh}{2} \times H$

$=$

IV) Multiply using the partial product method

Ex: 56 x 23

56 (Think of 56 as 50 + 6)
x23 (Think of 23 as 20 + 3)

Now only use 50 + 6 ⟵ row #1
and 20 + 3 ⟵ row #2

Now make sure that each number in row #1 is multiplied by each number in row #2, then add those parts of the product.

50 + 6
x 20 + 3
6 x 3 =18
50 x 3 =150
20 x 6 =120
+ 20 x 50 =1000
1288

56
x 23
18
150
120
+ 1000
1288

This is all that needs to be seen

a) 38 x 17

b) 45 x 31

c) 47 x 55

d) 123 x 24

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