

Thursday, Feb 18th

Please complete the following sheet. :)

Review – 3.1 & 3.2

Topics: -Prime Numbers - Greatest Common Factor - Square Roots
- Prime Factorization - Lowest Common Multiple - Cube Roots

Surface Area and Volume of a Cube

$SA = 6 (s \times s)$ or $6 (l \times w)$ Remember – all the sides are the same in a cube ☺

$Volume = s \times s \times s$ or $l \times w \times h$

1. Completely factor each of the following numbers: "Prime Factorization"
a) 848 925 b) 7007
2. Find the greatest common factor for each of the following:
a) 52, 130, 182 b) 66, 165, 321
3. Find the least common multiple for each of the following:
a) 3528, 37044 b) 75625, 190575, 136125
4. Identify if the following numbers are perfect squares, perfect cubes, both, or neither.
a) 1000 b) 729 c) 1715 d) 11025

5. A developer wants to subdivide a rectangular plot of land measuring 2912m by 1820m into congruent square pieces. What is the side length of the largest possible square?
6. The Mayan used several different calendar systems; one system used 365 days, another system used 260 days. Suppose the first day of both calendars occurred on the same day. After how many days would they again occur on the same day? About how long is this in years? Assume 1 year has 365 days.
7. A cube has surface area 6534 square feet. What is its volume?
8. Danielle and Chris live in the Northwest Territories in isolation. Food is only delivered to them by plane. Danielle gets her food delivered every 40 days, while Chris gets his food every 90 days. If both people get their food delivered today when will they both get their food delivered on the same day again?
9. The volume of a cube is 21952. What is the surface area?
10. A cube has a SA of 13824 m². Calculate the volume of the cube.
11. A cube has a surface area of 1536m². Calculate the volume of the cube.

8. Danielle and Chris live in the Northwest Territories in isolation. Food is only delivered to them by plane. Danielle gets her food delivered every 40 days, while Chris gets his food every 90 days. If both people get their food delivered today when will they both get their food delivered on the same day again?
9. The volume of a cube is 21952. What is the surface area?
10. A cube has a SA of 13824 m². Calculate the volume of the cube.
11. A cube has a surface area of 1536m². Calculate the volume of the cube.
12. If the surface area of a cube is 1176 m², what is the side length?
13. If the volume of a cube is 1728cm³, what is the side length?
14. A cube has a volume of 10648 m³. Calculate the surface area of the cube.
15. A cube has a surface area of 1944m². Calculate the volume of the cube.
16. Determine whether each number is a perfect square, a perfect cube or neither.
a) 3375 b) 676 c) 1089 d) 13824

Review 3.1 & 3.2

1. a) $848\ 925 \rightarrow 3 \times 3 \times 5 \times 5 \times 7 \times 7 \times 7 \times 11$

b) $7007 \rightarrow 7 \times 7 \times 11 \times 13$

2. a) $52 = 2 \times 2 \times 13$

$130 = 2 \times 5 \times 13$

$182 = 2 \times 7 \times 13$

GCF = 2×13
= 26

$$b) 66 = 2 \times 3 \times 11$$

$$165 = 3 \times 5 \times 11$$

$$321 = 3 \times 107$$

$$\text{GCF} = 3$$

$$3. a) 3528 = 2 \times 2 \times 2 \times 3 \times 3 \times 7 \times 7 = 2^3 \times 3^2 \times 7^2$$

$$37044 = 2 \times 2 \times 3 \times 3 \times 3 \times 7 \times 7 \times 7 =$$

$$2^2 \times 3^3 \times 7^3$$

$$\begin{aligned} \text{LCM} &= 2^3 \times 3^3 \times 7^3 \\ &= 8 \times 27 \times 343 \\ &= 74088 \end{aligned}$$

3 b)

$$75625 = 5 \times 5 \times 5 \times 5 \times 11 \times 11 = 5^4 \times 11^2$$

$$190575 = 5 \times 5 \times 3 \times 3 \times 7 \times 11 \times 11 = 3^2 \times 5^2 \times 7 \times 11^2$$

$$136125 = 3 \times 3 \times 5 \times 5 \times 5 \times 11 \times 11 = 3^2 \times 5^3 \times 11^2$$

$$\text{LCM} = 3^2 \times 5^4 \times 7 \times 11^2$$

$$9 \times 625 \times 7 \times 121$$

$$4764375$$

4. 764375

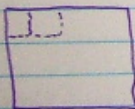
4. a) $1000 = 2 \times 2 \times 2 \times 5 \times 5 \times 5$ Perfect Cube

change \rightarrow b) $729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$ Perfect Square and Cube

c) $1715 = 5 \times 7 \times 7 \times 7$ Neither

change \rightarrow d) $11025 = \underline{3} \times \underline{3} \times \underline{5} \times \underline{5} \times \underline{7} \times \underline{7}$ Perfect Square.

5.



2912m

$1820 = 2 \times 2 \times 5 \times 7 \times 13$
 $1820m \quad 2912 = 2 \times 2 \times 2 \times 2 \times 2 \times 7 \times 13$

GCF = $2 \times 2 \times 7 \times 13$
 $= 364$

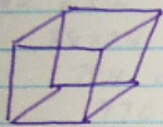
6.

$$365 = 5 \times 73 = 5 \times 73$$
$$260 = 2 \times 2 \times 5 \times 13 = 2^2 \times 5 \times 13$$
$$\text{LCM} = 2^2 \times 5 \times 13 \times 73$$
$$= 4 \times 5 \times 13 \times 73$$
$$= 18980$$

How Long in years?

$$\frac{18980}{365} = 52 \text{ years.}$$

7.



$$SA = \frac{6534}{6 \text{ sides}}$$

$$= 1089 \text{ (Area of each side)}$$

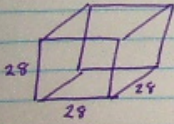
$$\sqrt{1089} = 3 \times 3 \times 11 \times 11$$

$$= \frac{3 \times 11}{33}$$

Volume \rightarrow $L \times w \times h$
 $33 \times 33 \times 33$
 35937

$$8. \quad \begin{aligned} 40 &= 2 \times 2 \times 2 \times 5 = 2^3 \times 5 \\ 90 &= 2 \times 3 \times 3 \times 5 = 2 \times 3^2 \times 5 \end{aligned}$$

$$\text{LCM} = \begin{array}{c} 2^3 \times 3^2 \times 5 \\ 8 \times 9 \times 5 \\ 360 \end{array}$$

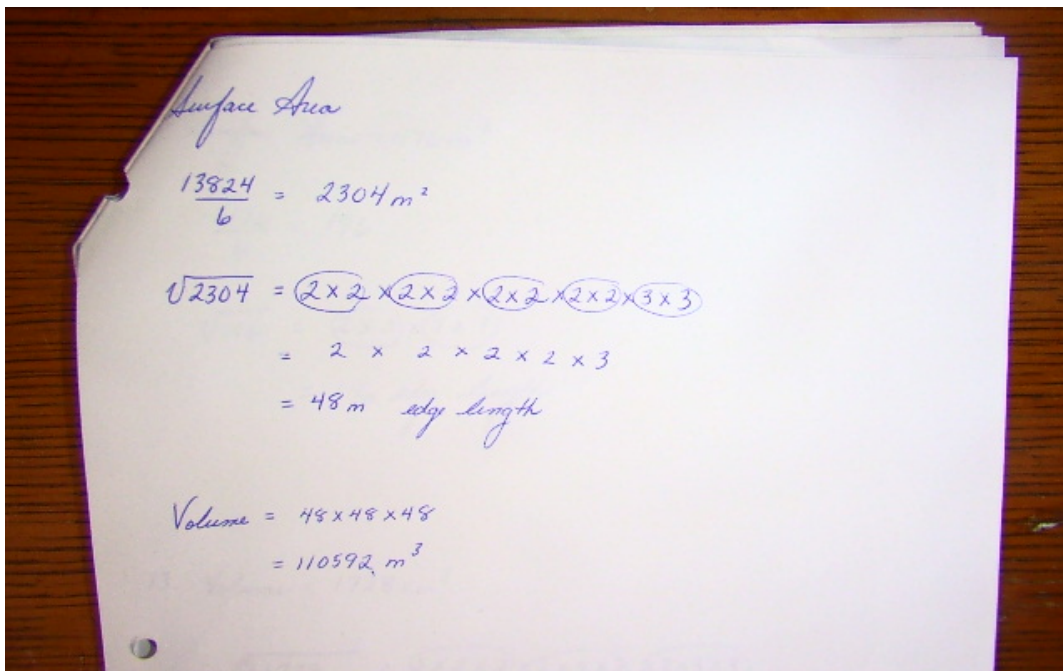
9.  $V = 21952$

$$\sqrt[3]{21952} = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 7 \times 7 \times 7$$

$$2 \times 2 \times 7$$

$$28$$

$$\begin{aligned} SA &= L \times w \\ 28 \times 28 \\ 784 \times 6 \\ 4704 \end{aligned}$$



11. Surface Area

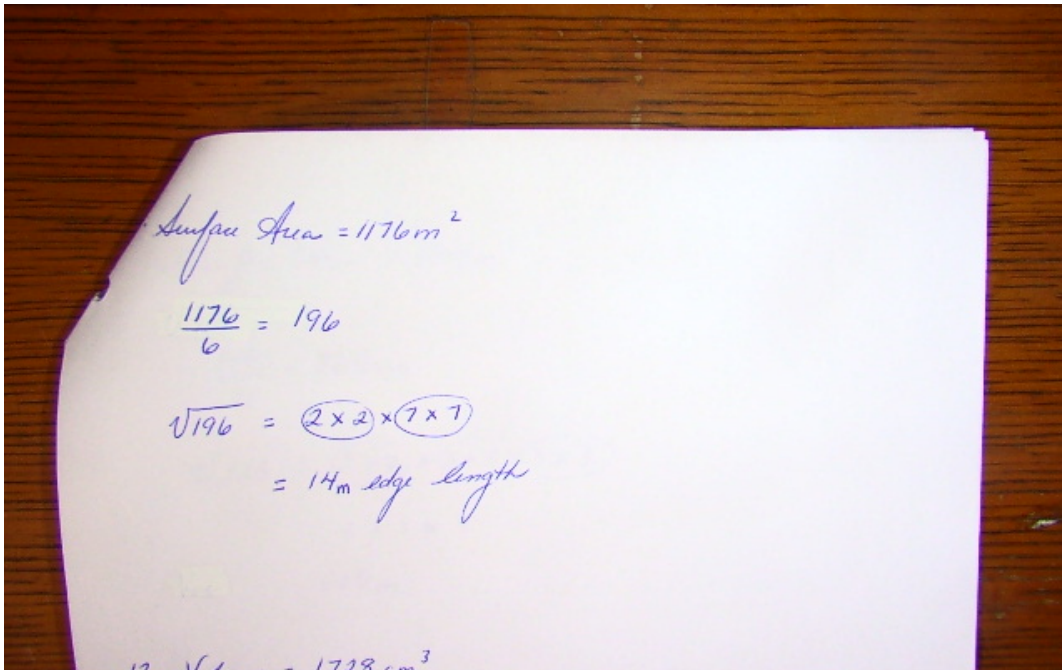
$$\frac{1536}{6} = 256 \text{ m}$$

$$\sqrt{256} = (2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (2 \times 2)$$

$$2 \times 2 \times 2 \times 2$$

$$= 16 \text{ m edge length}$$

$$\begin{aligned} \text{Volume} &= 16 \times 16 \times 16 \\ &= 4096 \text{ m}^3 \end{aligned}$$



$$= 14 \text{ m edge length}$$

13. Volume = 1728 cm^3

$$\begin{aligned} \sqrt[3]{1728} &= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3 \\ &= 2 \times 2 \times 3 \\ &= 12 \text{ cm edge length} \end{aligned}$$

14. Volume = 10648 m^3

14. Volume = 10648 m^3

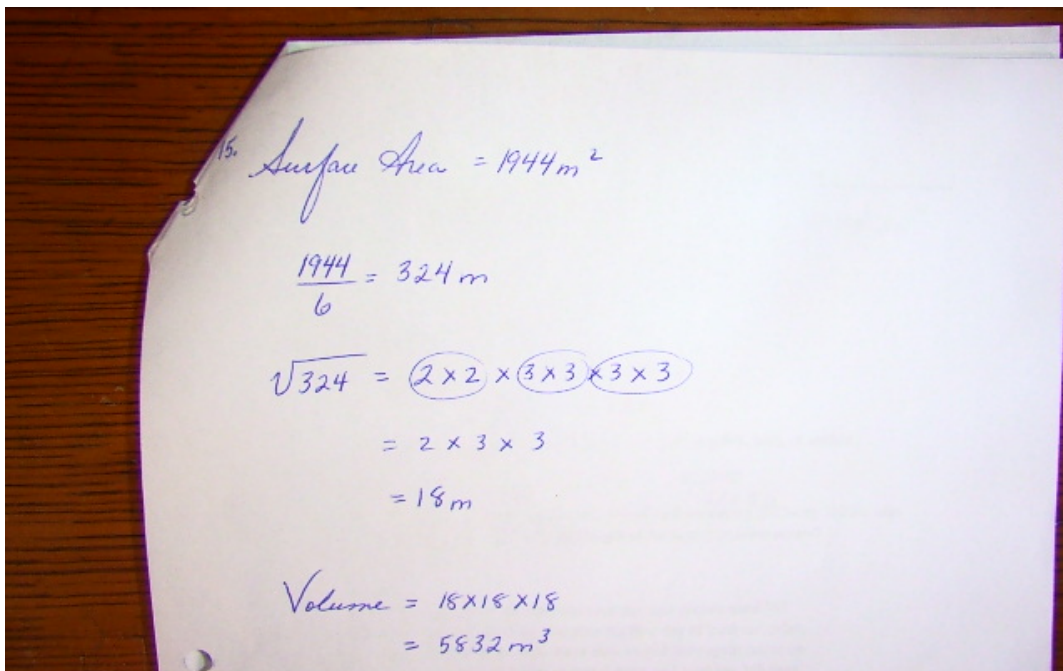
$$\sqrt[3]{10648} = (2 \times 2 \times 2) \times (11 \times 11 \times 11)$$

$$= 2 \times 11$$

$$= 22 \text{ m}$$

Luas Ala = $A = L \times W$

$$\begin{array}{r} 22 \times 22 \\ 484 \text{ m}^2 \\ \times 6 \\ \hline 2904 \text{ m}^2 \end{array}$$



$$= 5832 \text{ m}^3$$

16.

a) $3375 \rightarrow (3 \times 3 \times 3) \times (5 \times 5 \times 5)$ Perfect Cube

b) $676 \rightarrow (2 \times 2) \times (13 \times 13)$ Perfect Square

c) $1089 \rightarrow (11 \times 11) \times (3 \times 3)$ Perfect Square.

d) $15824 \rightarrow (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (2 \times 2 \times 2) \times (3 \times 3 \times 3)$
Perfect Cube.