

## Roots and Powers – Review

1. Identify the index of:

b)  $\sqrt[3]{2^7}$

b)  $\sqrt[4]{16}$

c)  $\sqrt[4]{\frac{256}{625}}$

2. What is the meaning of the index?

3. Identify the radicand of:

b)  $\sqrt[3]{2^7}$

b)  $\sqrt[4]{16}$

c)  $\sqrt[4]{\frac{256}{625}}$

4. Evaluate each of the following:

a)  $\sqrt[4]{16}$

b)  $\sqrt[3]{-64}$

c)  $\sqrt[3]{8000}$

d)  $\sqrt[4]{4096}$

Use prime factorization to determine whether 4096 is a perfect square or a perfect cube.

a)  $\sqrt[4]{16}$

b)  $\sqrt[3]{64}$

c)  $\sqrt[3]{8000}$

d)  $\sqrt[4]{4096}$

5. Use prime factorization to determine whether 4913 is a perfect square, a perfect cube or neither.
6. Find the greatest common factor.  
b) 420 and 864
7. Find the lowest common multiple.  
b) 12 and 40
8. A cube has a volume of  $74088 \text{ cm}^3$ . What is the surface area of the cube?
9. A cube has a surface area of  $5400 \text{ cm}^2$ . What is its volume?
10. Marley is preparing treat bags for Halloween. She has 48 chips, 60 chocolate bars and 84 suckers. She wants all of her bags to be the same. How many bags can she make?
11. Write each of the following as an entire:  
a)  $4\sqrt[2]{12}$  b)  $5\sqrt[2]{5}$  c)  $7\sqrt[3]{11}$  d)  $3\sqrt[5]{10}$
12. Write each of the following in lowest terms (mixed radical)  
a)  $\sqrt[4]{243}$  b)  $5\sqrt[3]{48}$  c)  $\sqrt[3]{1080}$  d)  $\sqrt[5]{2592}$

12. Write each of the following in lowest terms ( mixed radical)

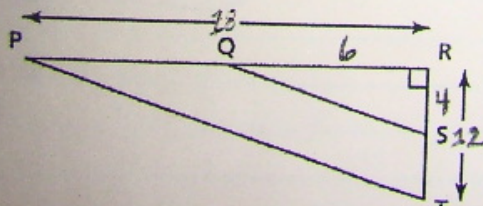
a)  $\sqrt[4]{243}$  b)  $5\sqrt[3]{48}$  c)  $\sqrt[3]{1080}$  d)  $\sqrt[5]{2592}$

13. A cube has a volume of  $1080\text{cm}^3$ . Write the edge length of the cube as a radical in simplest form

14. The surface area of a cube is  $37800\text{cm}^2$ . Express the edge length of the cube in simplest form.

15.

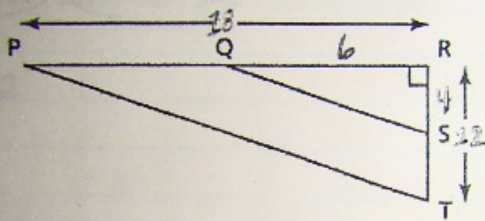
a) Use the diagram to explain why  $\sqrt{468} = 3\sqrt{52}$   $6\sqrt{13}$



4. The surface area of a cube is  $37800\text{cm}^2$ . Express the edge length of the cube in simplest form.

5.

a) Use the diagram to explain why  $\sqrt{468} = 3\sqrt{52}$   $6\sqrt{13}$



b) Use algebra to verify that  $\sqrt{468} = 3\sqrt{52}$

16. Bill and Betty do chores at home. Bill mows the lawn every 8 days and Betty bathes the dog every 14 days. Suppose Bill and Betty do their chores today, how many days will pass before they both do the chores on the same day again?