

Grade 9 Math Unit 1 Review  
Square Roots and Surface Area

$$\frac{\quad}{14} + \frac{\quad}{28} = \frac{\quad}{42} =$$

Name: Key

**SHOW ALL WORKINGS!**

NUMBER SECTION:

(10 marks)

Part A: Selected Response: Circle the correct answer.

(8 marks)

1. Which of the following numbers is a perfect square number? (N5.1)

- A. 0.0049
- B. 0.049
- C. 4.9
- D. 490

2. What is the square root of  $\frac{36}{81}$ ? (N5.2)

- A. 6
- B.  $\frac{6}{8}$
- C.  $\frac{6}{9}$
- D.  $\frac{1296}{6561}$

3. What is the square of  $\frac{4}{9}$ ? (N5.4)

- A. 2
- B.  $\frac{2}{3}$
- C.  $\frac{8}{18}$
- D.  $\frac{16}{81}$

4. A square garden has an area of  $31.5 \text{ m}^2$ . What is a good estimate the dimensions of the garden? (N6.1)

- A. 5.6
- B. 7.9
- C. 15.8
- D. 30

1. Samantha is answering a question on her Math Assignment and she states that the square root of 900 is 450. Is she correct? Explain your answer. (5.3) (3 marks)

$$\sqrt{900} = 30$$

$$\frac{900}{2} = 450$$

Samantha is not correct - she divided by 2 instead of finding the square root.

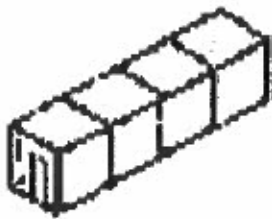
2. Write any number that has a square root between 2.3 and 2.4. (N6.4) (3 marks)

$$2.35 \times 2.35 = 5.5225$$

#### SHAPE AND SPACE

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1. What is the surface area of the object formed by the interlocking cubes if each face is  $1 \text{ cm}^2$ ? (SS2.2) (2 marks)

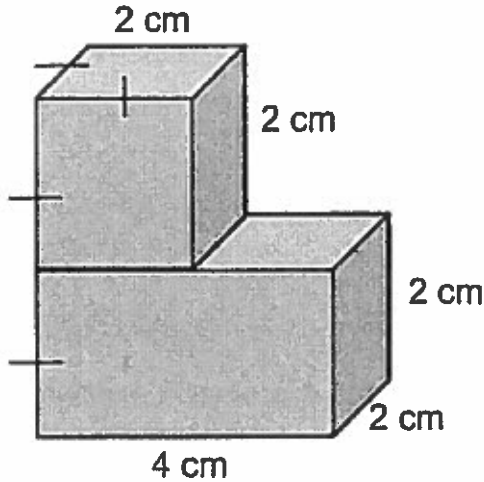


$$4 \times 6 = 24$$
$$3 \times 2 = 6 \quad \text{- overlaps.}$$

$$24 - 6 = 18$$

2. Determine the surface area of these composite shapes.

A)



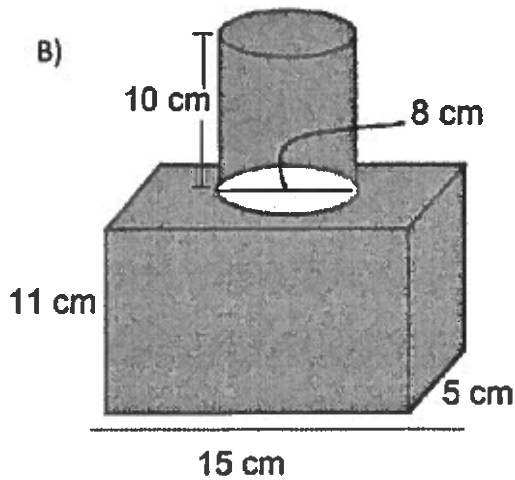
$$\text{Square} \Rightarrow 2 \times 2 \times 6 = 24 \text{ (6 marks)}$$

$$\begin{aligned} \text{Rectangular} &\Rightarrow 2 \times 2 \times 2 = 8 \\ \text{Prism} &\Rightarrow 4 \times 2 \times 4 = \frac{32}{40} \end{aligned}$$

$$\text{Overlaps} \Rightarrow 2 \times 2 \times 2 = 8$$

$$\begin{aligned} \text{TSA} &= 24 + 40 - 8 \\ &= 56 \text{ cm}^2 \end{aligned}$$

B)



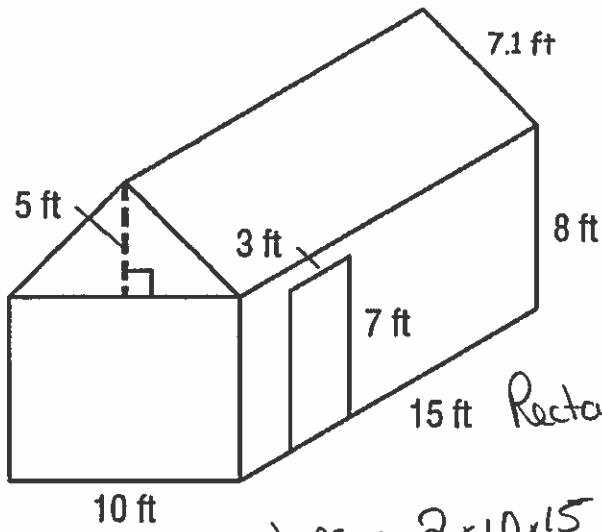
$$\begin{aligned} \text{Cylinder} &\Rightarrow 2\pi r^2 + 2\pi rh \text{ (8 marks)} \\ &= 2(3.14)(4)^2 + 2(3.14)(4)(10) \\ &= 100.48 + 251.20 \\ &= 351.68 \end{aligned}$$

$$\begin{aligned} \text{Rectangle} &= 5 \times 11 \times 2 = 110 \\ &15 \times 11 \times 2 = 330 \\ &15 \times 5 \times 2 = \frac{150}{590} \end{aligned}$$

$$\begin{aligned} \text{Overlaps} &\Rightarrow 2\pi r^2 \\ &= 2(3.14)(4)^2 \\ &= 100.48 \end{aligned}$$

$$\begin{aligned} \text{TSA} &= 351.68 + 590 - 100.48 \\ &= 841.20 \end{aligned}$$

3. a) The Ramirez family is going to paint the complete EXTERIOR of the shed except for the door and bottom. (11 marks)



triangular Prism  $\Rightarrow$

$$2\left(\frac{1}{2}bh\right)$$

$$2\left(\frac{1}{2}(10)(5)\right)$$

$$50$$

$$2 \times 15 \times 7.1 = 213$$

$$10 \times 15 = \frac{150}{363}$$

$$50 + 363 = 413 \text{ ft}^2$$

15 ft Rectangular  $\Rightarrow 2 \times 10 \times 8 = 160$

$$2 \times 15 \times 10 = 300$$

$$2 \times 15 \times 8 = 240$$

$$\frac{700}{813 \text{ ft}^2}$$

$$\text{Overlaps} = 2 \times 10 \times 15$$

$$= 300$$

$$\text{TSA} = 413 + 700 - 300 = 813 \text{ ft}^2$$

- b) The paint cost \$1.25 a square foot. How much to paint the exterior of the shed? (1 mark)

$$813 - \overset{\text{door}}{21} - \overset{\text{bottom}}{150} = 642 \text{ ft}^2$$

$$b) \quad 642 \times 1.25 = \$802.50$$

to paint the exterior