

Grade 9 Math Unit 1 Test

Name: _____

Total: /30

Place the answer in the blank to the left. [5 marks]

$$\frac{7}{11}$$

1. What is $\sqrt{\frac{49}{121}}$?

$$\begin{array}{r} 0.24 \\ \hline 16 \\ \hline 81 \end{array}$$

2. Calculate the square root of 0.0576.

3. Which number has a square root of $\left(\frac{4}{9}\right)$ $\sqrt{\quad} = \frac{2}{3}$

Answers may vary

1.75

4. Give an example of a number that has a square root between $(1.3)^2$ and $(1.4)^2$.

$$\frac{9}{64}$$

5. What is the square of $\left(\frac{3}{8}\right)^2$ Any # between 1.69 and 1.96

Constructed Response: Show all your steps for full marks.

6. Estimate $\sqrt{\frac{34}{119}}$ using benchmarks.

[2]

$$\sqrt{\frac{34}{119}} \div \sqrt{\frac{36}{121}}$$

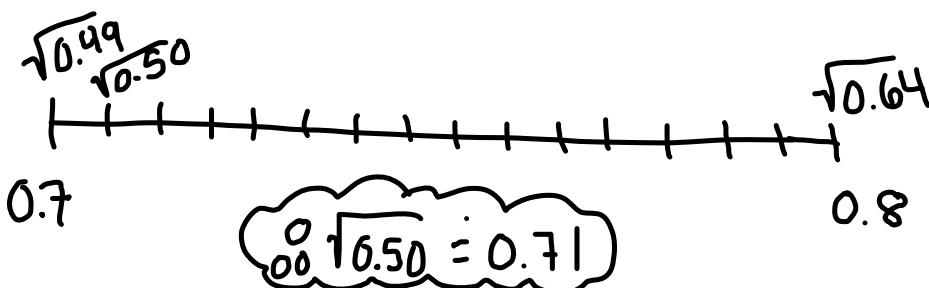
$$\frac{0}{00} \sqrt{\frac{34}{119}} = \frac{6}{11}$$

Since $\sqrt{\frac{36}{121}} = \frac{6}{11}$

7. Estimate $\sqrt{0.5}$ without using technology. (Using benchmarks, number line, etc...) [3]

$$\sqrt{0.50}$$

$$\sqrt{0.49} = 0.7 \quad \sqrt{0.64} = 0.8$$



8. Is $\frac{25}{50}$ a perfect square? Explain why or why not.

$$\frac{25 \div 25}{50 \div 25} = \frac{1}{2}$$

***Remember to reduce fractions!**

$\frac{25}{50}$ is not a perfect square because even when you reduce the fraction you cannot find a # that when mult. by itself equals

9. A square garden has an area of 5.29 m^2 . What is the perimeter of the garden? [2]

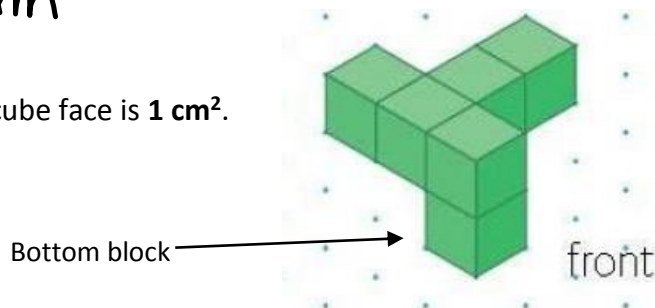
$$\text{Side length} = \sqrt{\text{Area}} = \sqrt{5.29} = 2.3$$

$$\begin{aligned} \text{Perimeter} &= 4 \times 2.3 \\ &= 9.2 \text{ m} \end{aligned}$$



$\frac{25}{50}$ or $\frac{1}{2}$.

10. The area of each cube face is 1 cm^2 .



- A. What is the total surface area of the object above?

[2]

$$\begin{aligned} & (6 \times \# \text{ of cubes}) - (2 \times \# \text{ of overlaps}) \\ &= (6 \times 6) - (2 \times 5) \\ &= 36 - 10 \\ &= 26 \text{ cm}^2 \end{aligned}$$

- B. How does the total area change if you remove the bottom block?

[1]

$$\begin{aligned} & (6 \times 5) - (2 \times 4) \\ &= 30 - 8 \\ &= 22 \text{ cm}^2 \end{aligned}$$

The area decreases by 4 cm^2

11. "Reid's Robotics" produces Thingy-ma-jiggys. Each Thingy-ma-jiggy gets spray painted all over. What is the total surface area that is spray painted? [6 marks]

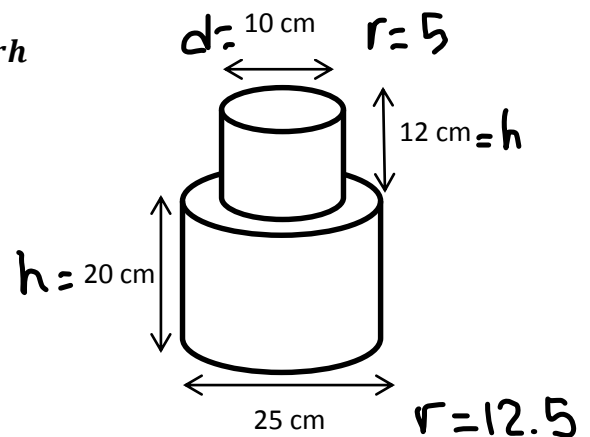
$$\text{Surface Area of a Cylinder} = 2\pi r^2 + 2\pi rh$$

S.A Top Cylinder

$$\begin{aligned} & [2 \times 3.14 \times 5^2] + [2 \times 3.14 \times 5 \times 12] \\ & = 157 + 376.8 \\ & = 533.8 \end{aligned}$$

S.A Bottom Cylinder

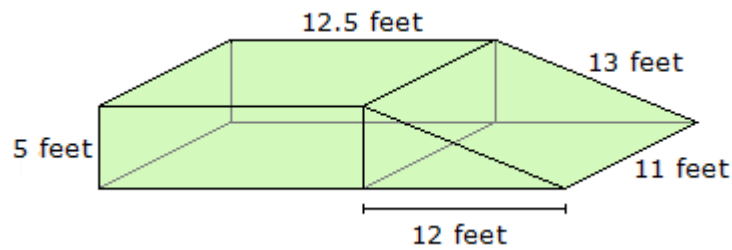
$$\begin{aligned} & [2 \times 3.14 \times 12.5^2] + [2 \times 3.14 \times 12.5 \times 20] \\ & = 981.25 + 1570 \\ & = 2551.25 \end{aligned}$$



$$\begin{aligned} \text{Overlap: } & 2(\pi r^2) \\ & = 2(3.14 \times 5^2) \\ & = 157 \end{aligned}$$

$$\begin{aligned} \text{T.S.A} & = 533.8 + 2551.25 - 157 \\ & = 2928.05 \text{ cm}^2 \end{aligned}$$

12. Sally is building a skateboard ramp. She is going to paint it blue.



A. If she does not paint the bottom, what is the total surface area to be painted?

S.A Rectangular Prism:

$$\text{Top: } 12.5 \times 11 = 137.5$$

$$\text{Left: } 5 \times 11 = 55$$

$$\text{F\&B: } 2(5 \times 12.5) = 125$$

$$317.5$$

S.A Triangular Prism:^[6]

$$\text{F\&B: } 2\left(\frac{12 \times 5}{2}\right) = 60$$

$$\text{Top: } 11 \times 13 = \underline{143}$$
$$203$$

$$\text{T.S.A} = 317.5 + 203 = 520.5 \text{ ft}^2$$

B. If one can of paint covers 50 ft^2 , how many cans of paint will she need? ^[1]

$$520.5 \div 50 = 10.41$$

She needs 11 cans of paint