

REVIEW-Surface Area & Volume

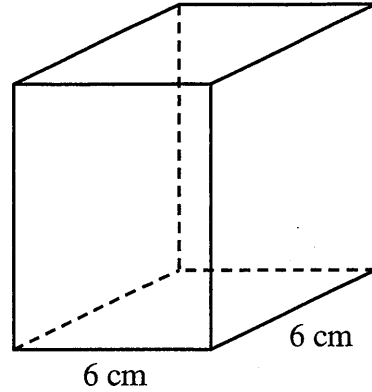
The total area of a square prism whose base measures 6 cm a side is 312 cm^2 .

What is the height of the prism?

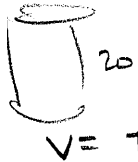
$$4(6) \cdot h = 312$$

$$24h = 312$$

$$h = 13 \text{ cm}$$



A tank is in the shape of a right cylinder whose height is 20 m. The tank can hold 6280 kL of oil. What is the length of the diameter of this tank?



$$V = \pi r^2 h$$

$$6280 = \pi r^2 \cdot 20$$

$$r^2 = 100$$

$$r = 10$$

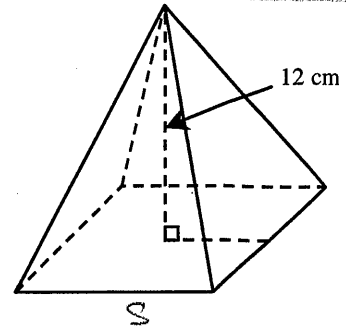
d = 20 m

The volume of a square-based pyramid is 223 cm^3 . The height of this pyramid is 12 cm. What is the length of a side of the base of this pyramid?

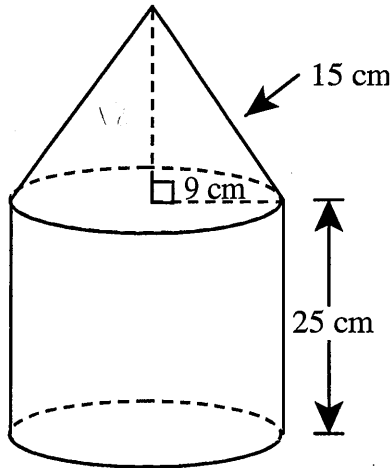
$$223 = \frac{s^2 \cdot 12}{3}$$

$$55.75 = s^2$$

$$7.47 \text{ cm}$$



What is the total surface area of the following solid?



$$2\pi r h + \pi r^2 + \pi r s$$

$$2\pi(9)(25) + \pi(9)^2 + \pi(9)(15)$$

$$450\pi + 81\pi + 135\pi$$

$$666\pi$$

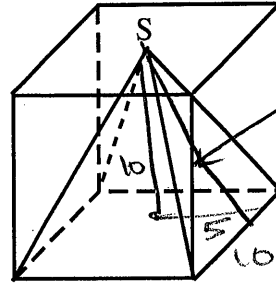
$$2092.3 \text{ cm}^2$$

REVIEW-Surface Area & Volume

The figure to the right shows a pyramid within a cube.

The total surface area of the cube is 600 cm². Vertex S of the pyramid is at the centre of the top face of the cube.

Find the total surface area of the pyramid after it is removed from the cube.



$$A_T = 600$$

$$\frac{600}{6} = 100 \quad \sqrt{100} = 10$$

$$5^2 + 10^2 = c^2$$

$$\sqrt{125} = c$$

$$11.1 = c$$

$$\frac{P \cdot s}{2} + A_D$$

$$\frac{40(11.1)}{2} + 10^2$$

$$323.6 \text{ cm}^2$$

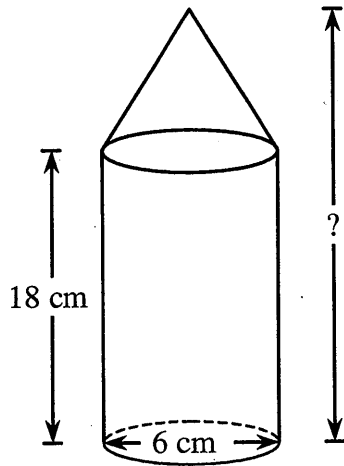
The pencil container shown on the right has a volume of 565 cm³. The diameter of the base is 6 cm. The length of the cylindrical part is 18 cm.

$$V_{\text{cone}} = V_{\text{whole}} - V_{\text{cylinder}}$$

$$\frac{\pi 3^2 \cdot h}{3} = 565 - \pi 3^2 \cdot 18$$

$$3\pi \cdot h = 565 - 508.9$$

$$3\pi \cdot h = 56.1 \quad h = 5.95$$

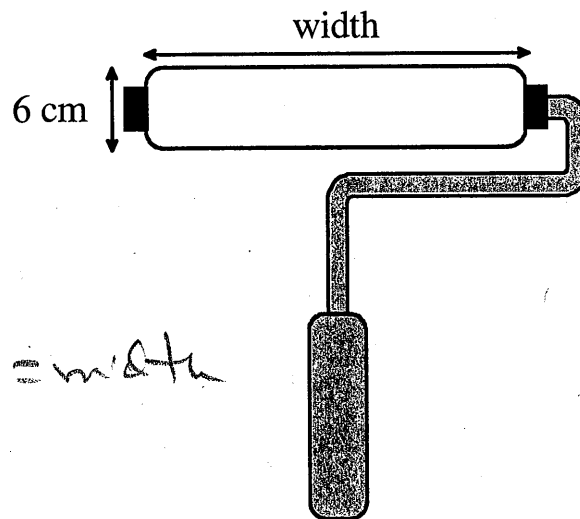


$$18 + 5.95$$

$$23.95 \text{ cm}$$

To the nearest centimetre, what is the full length the container?

A painter uses a roller with a diameter of 6 cm. Each revolution covers an area of 471 cm². **What is the width of the roller to the nearest cm?**



$$A_c = 471$$

$$2\pi(3)h = 471$$

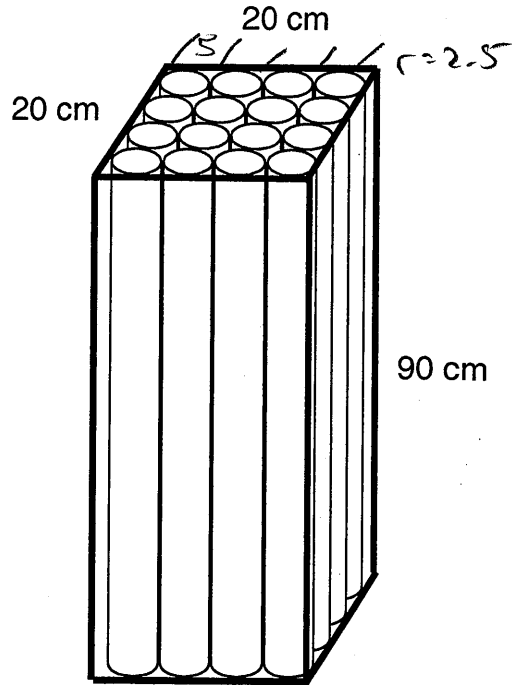
$$h \approx 25 \text{ cm} = \text{width}$$

REVIEW-Surface Area & Volume

Sixteen cylindrical neon tubes, each 90 cm long, are tightly packed in a box in the shape of a square prism.

To protect the tubes, foam is injected into the empty space in the box.

What volume of foam is required to completely fill the empty space?



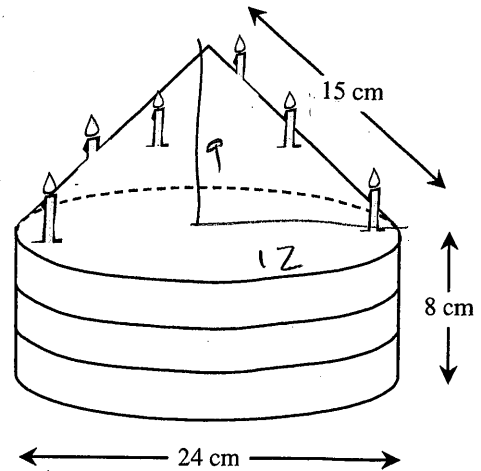
$$V_{\text{Box}} - 16(V_{\text{cyl}})$$

$$20 \cdot 20 \cdot 90 - 16(\pi(2.5^2)(90))$$

$$36000 - 28274$$

$$\approx 7726 \text{ cm}^3$$

Edward loves astronomy. For his birthday, Edward's mother made him a cake in the shape of a rocket (a cylinder with a cone on top). **What is the total volume of Edward's birthday cake?**



$$\frac{\pi(12^2 \cdot 9)}{3} + \pi(12^2)(8)$$

$$432\pi + 1152\pi = 1584\pi$$

$$4976.3 \text{ cm}^3$$

The total surface area of the probe is 179 m^2 and the radius of its base measures 3 m.

What is the total height of *Space Probe Mars 3*?

Mars 3?

$$A_T = 2\pi rh + \pi r^2 + 2\pi r^2$$

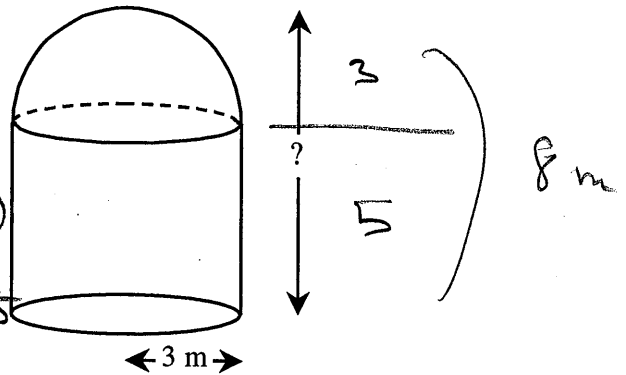
$$179 = 2\pi(3)(h) + \pi(3^2) + 2\pi(3^2)$$

$$179 = 18.85h + 28.27 + 56.55$$

$$94.18 = 18.85h$$

$$\frac{94.18}{18.85} = \frac{18.85h}{18.85}$$

$$5 = h$$



**Review: Geometric Probability, Isometrics, Statistics,
Inequalities, Scientific Notation**

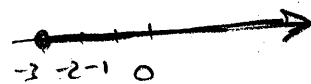
Represents the solution set of the inequality below with an interval notation and on a number line?

$$-2x + 5 \leq 11$$

$$\frac{-2x \leq 6}{-2}$$

$$x \geq -3$$

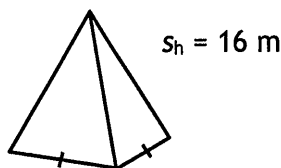
$$[-3, \infty[$$



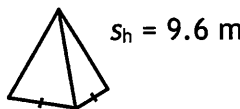
Two square based pyramids are similar. The lateral area of the larger pyramid is 320m².

The slant height of the larger pyramid is 16 m.

The slant height of the smaller pyramid is 9.6 m.



Lateral Area = 320 m²



Lateral Area = ? 115.2 m²

$$\frac{80}{48} = \frac{5}{3} \quad k^2 = \frac{25}{9}$$

$$\frac{16}{9.6} = k = 1.66$$

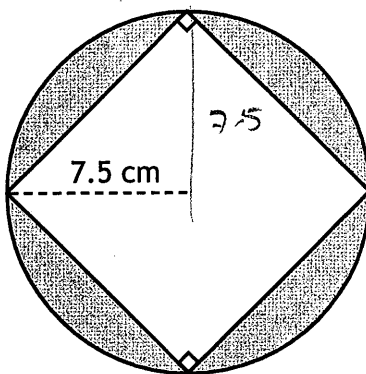
$$k^2 = 2.78$$

What is the lateral area of the smaller pyramid?

$$\div 2.78$$

$$\div \frac{25}{9} = \times \frac{9}{25}$$

On the target below, the square is inside the circle. The radius of the circle is 7.5 cm.



$$A_{\square} = \frac{4(b \cdot h)}{2} = \frac{4(7.5 \cdot 7.5)}{2}$$

$$= 112.5$$

$$A_{\circ} = \pi (7.5^2) = 176.7$$

$$\frac{A_{\circ} - A_{\square}}{A_{\circ}} = \frac{176.7 - 112.5}{176.7}$$

$$36.3\%$$

What is the probability, to the nearest percentage, that the dart lands in the shaded area?

What is the answer to the following in correct scientific notation?

$$(0.95 \times 10^{-5}) \cdot (25.6 \times 10^3) = 0.2432$$

A) 2.432×10^{-3}

C) 2.432×10^{-1}

$$2.432 \times 10^{-1}$$

B) 2.432×10^{-14}

D) 24.32×10^{-2}

**Review: Geometric Probability, Isometrics, Statistics,
Inequalities, Scientific Notation**

In Brenda's Science class, the calculations of her term mark are shown in the table below. However, her Test 1 mark is missing.

Term Content (Weighting)	Brenda's Marks
Project (40%)	70
Test 1 (15%)	? x
Test 2 (25%)	73
Quiz 1 (5%)	40
Quiz 2 (5%)	80
Assignment (10%)	90
TERM MARK	71

28
 $0.15x$
 18.25
 2
 4
 9

 $61.25 + 0.15x = 71$

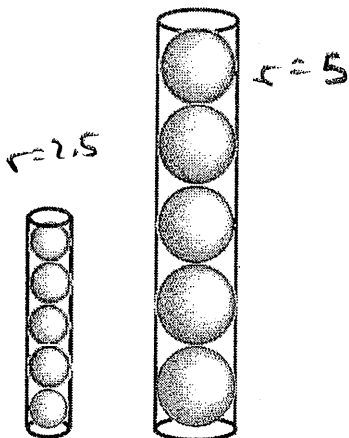
What is Brenda's mark for Test 1?

$9.75 = 0.15x$
 $x = 65$

A company makes 2 sizes of spherical ornaments: large and small.

The ornaments are sold in similar cylindrical containers.

- The area of 1 small ornament is 78.5 cm^2 . $= 4\pi r^2$ $r = 2.5$
- The volume of the small cylinder is 490.625 cm^3 .
- The volume of the large cylinder is 3925 cm^3 .



$\frac{3925}{490.625} = k = k^3$
 $k = 2$

$V = 490.625 \text{ cm}^3$ $V = 3925 \text{ cm}^3$

What is the radius of the large cylinder?

$r = 5 \text{ cm}$

**Review: Geometric Probability, Isometrics, Statistics,
Inequalities, Scientific Notation**

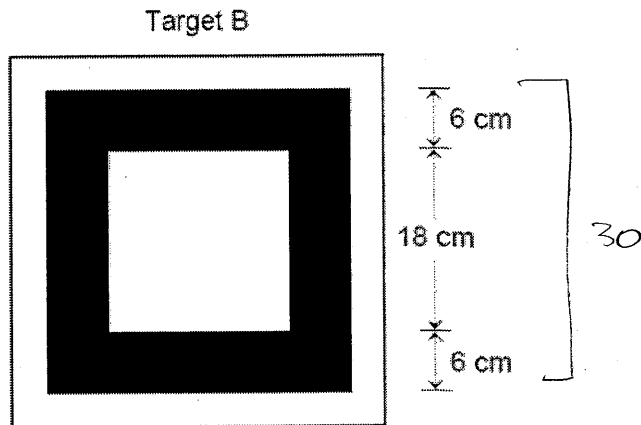
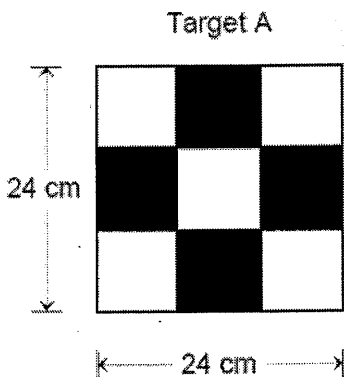
TWO TARGETS

A game of darts has two square targets.

Target A is divided into 9 congruent squares, 4 of which are black. The other squares are white. Each side of target A is 24 cm long.

The centre of target B is a white square with each side measuring 18 cm. This white square is surrounded by a black band that is 6 cm wide. The rest of the target is white.

The two targets are shown below.



$$\frac{4}{9} = 0.\overline{44}$$

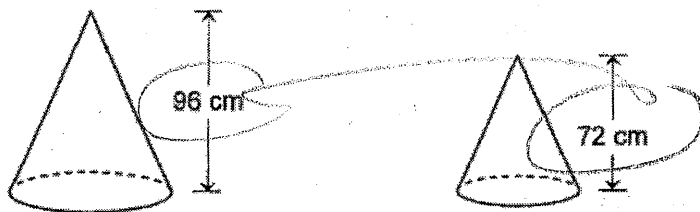
$$\frac{30^2 - 18^2}{576} = 0.\overline{44}$$

If a dart is thrown at random, the probability that it will hit a black area is the same for both targets.

How long is each side of target B?

$$\begin{aligned} \text{target} &= 1296 \\ \text{Side} &= 36 \text{ cm} \end{aligned}$$

9. Two right circular cones are similar. The lateral area of the bigger cone is $2800\pi \text{ cm}^2$. The height of the bigger cone is 96 cm. The height of the smaller cone is 72 cm.



$$k = \frac{96}{72} = \frac{4}{3}$$

$$k^2 = \frac{16}{9}$$

Lateral Area: $2800\pi \text{ cm}^2$

Lateral Area: ?

$$\div \frac{16}{9} \rightarrow 1575\pi \text{ cm}^2$$

What is the lateral area of the smaller cone to the nearest cm^2 ?

$$4948 \text{ cm}^2$$