Check Your Understanding – Equivalent Figures and Scale Factor

The table below identifies the key concepts from this unit.
1. Check your understanding by completing these questions.
2. Check your answers in the key provided.
3. In the table below, highlight the questions you got correct.
4. Ask peers/Dr. James about concepts where you can improve.

Key Concepts	Mild	Medium	Spicy
Equivalent Figures	1	2, 3	4
Scale Factor	5	6, 7, 8	9

1. A cube and a sphere have the same volume. If the sphere's radius is 3 cm, what is the cube's side length?
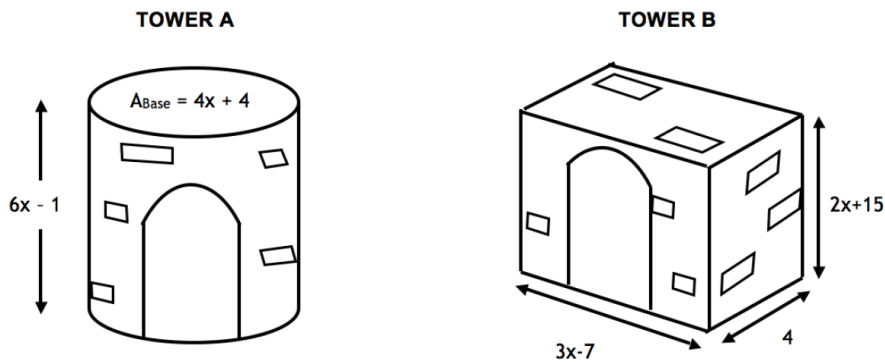
2. The cylinder and the cone (shown below) have the same volume. What is the total area of the cylinder?

12 dm   9 dm

4 dm
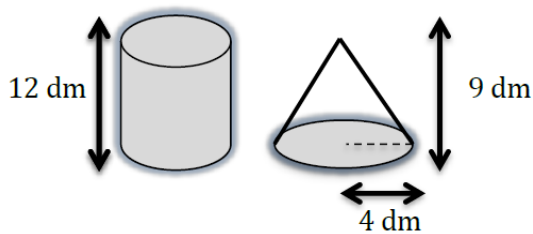
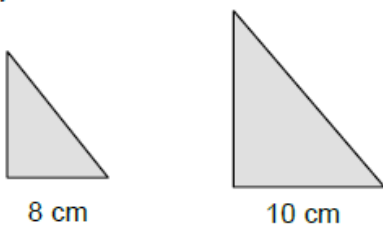**3. A sphere and a cone (shown below) are equivalent. What is the surface area of the sphere?**

13 m

5 m
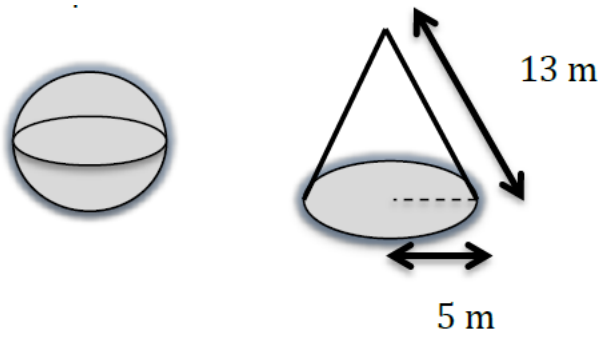
4. A dragon is sitting on top of Tower A. Tower A and Tower B are equivalent. How tall is Tower A?

TOWER A
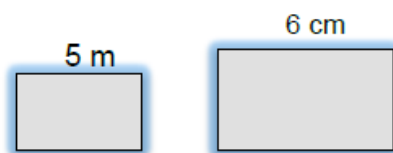
A_{Base} = 4x + 4

6x - 1

TOWER B

2x+15

3x-7

4

5. Determine the scale factor for each set of similar figures below.

a)

8 cm

10 cm

b)

5 m

6 cm

c)

70 cm

35 m
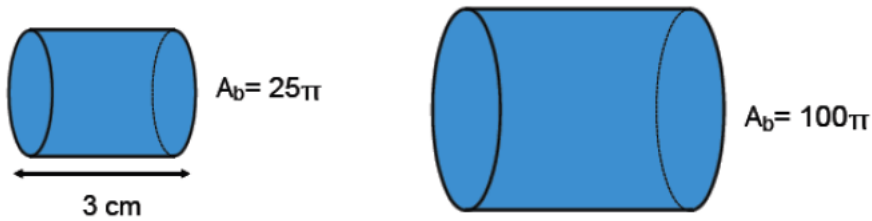
85 cm
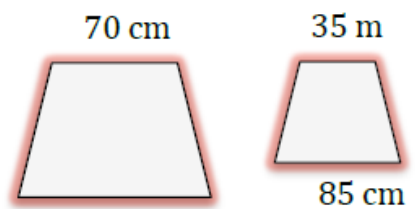
6. Determine the missing side length, y.

8

4

2.5

5

7.8

y
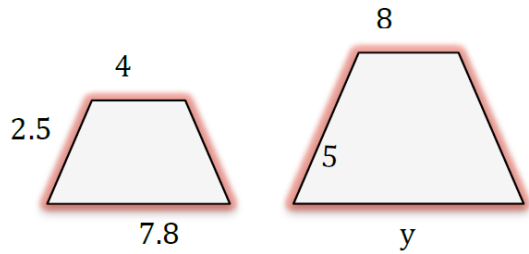
7. Determine the missing side lengths, m and n.

m

n

1.36

2.72

3.4

8. The two cylinders below are similar. What is the volume of the larger cylinder?

$A_b= 25\pi$

$A_b= 100\pi$

3 cm

9. Two square-based prisms are similar. The smaller prism has a height of 20 cm and the area of the base is 40 cm². The area of the base of the larger prism is 90 cm². What is the volume of the larger prism?

ANSWER KEY

1. $s = 4.8\ cm$

2. $Total\ Surface\ Area = 175.9\ dm^2$

3. $Surface\ Area = 223.5\ m^2$

4. $height = 23\ units$

5. a) $k = 1.25$ b) $k = 1.2$ c) $k = 0.5$

6. $y = 15.6\ units$

7. $n = 2.04\ units$ $m = 1.02\ units$

8. $Volume = 600\pi\ cm^3\ or\ 1884.96\ cm^3$

9. $Volume = 2700\ cm^3$