Find the ROOT of the following:

a) $\dfrac{225}{49}$

b) $\dfrac{100}{64}$

c) $\dfrac{9}{25}$

d) $\dfrac{121}{100}$

e) $\dfrac{64}{36}$

f) $\dfrac{144}{64}$

g) $\dfrac{16}{81}$

h) $\dfrac{121}{64}$

i) $\dfrac{81}{36}$

j) $\dfrac{400}{4}$

k) $\dfrac{81}{100}$

l) $\dfrac{36}{900}$

m) $\dfrac{64}{1}$

Find the square of the following:

a) $\dfrac{3}{2}$

b) $\dfrac{5}{2}$

c) $\dfrac{6}{7}$

d) $\dfrac{10}{3}$

e) $\dfrac{11}{6}$

f) $\dfrac{12}{5}$

g) $\dfrac{9}{7}$

h) $\dfrac{9}{4}$

i) $\dfrac{11}{12}$

j) $\dfrac{7}{9}$

k) $\dfrac{13}{6}$

l) $\dfrac{4}{3}$

m) $\dfrac{10}{7}$

Determine the value of each square root and round to the **10th place**.

a) $\sqrt{6.76}$

b) $\sqrt{327.61}$

c) $\sqrt{0.0025}$

d) $\sqrt{0.0225}$

e) $\sqrt{11.6}$

f) $\sqrt{0.39}$

g) $\sqrt{\dfrac{21}{2}}$

h) $\sqrt{\dfrac{11}{52}}$

i) $\sqrt{14.29}$

j) $\sqrt{\dfrac{15}{8}}$

k) $\sqrt{\dfrac{2}{19}}$

l) $\sqrt{0.7}$

What is the PERIMETER?	What is an AREA?

The area of a square mat is 15.35 m².

a) Determine the perimeter of the mat.

b) The owner decides to make this area larger by adding on 20.20 m² of material to the mat.
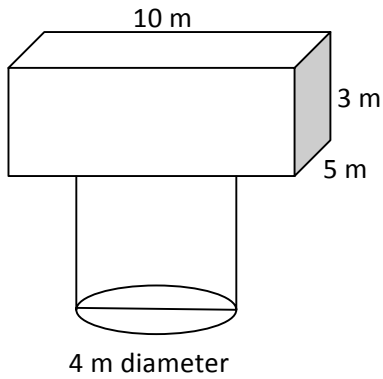What is the new side length of the mat?

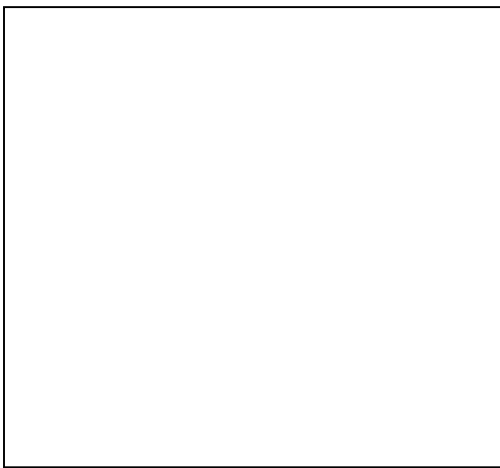Describe how your find the TOTAL SURFACE AREA of COMPOSITE OBJECTS.

3-D Shapes REVIEW NOTES
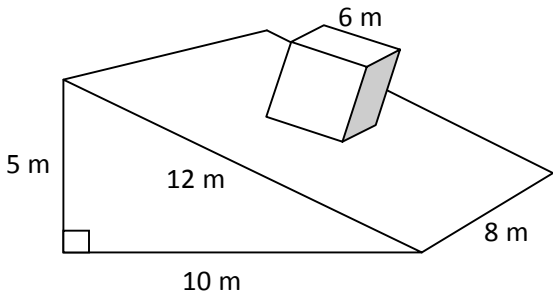
A. Rectangular Prism on Cylinder (4 marks)

10 m

3 m

5 m

4 m diameter

Cylinder

Rectangular Prism

TSA:

TSA:

B. Cube on Triangular Prism (4 marks)
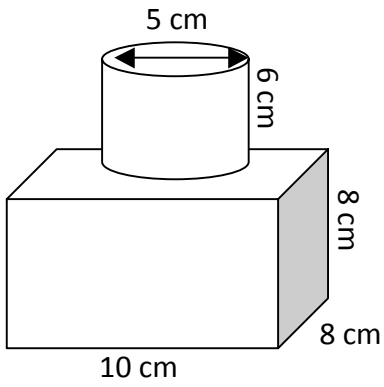
6 m

5 m

12 m

8 m

10 m

Cube

Triangular Prism
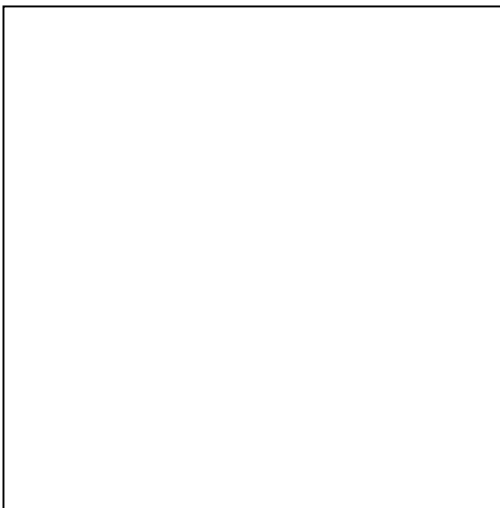
TSA:

TSA:

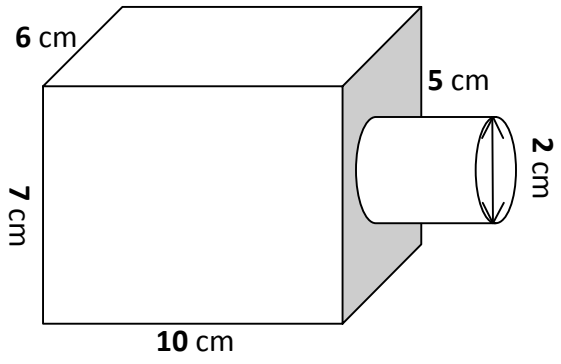# SET IT UP ON YOUR OWN

#1.) Cylinder on Rectangular Prism

5 cm

6 cm

8 cm

8 cm

10 cm

#2.) 4m cube on 8m cube
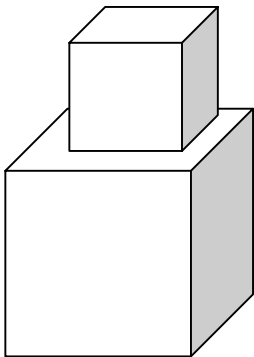
#3.) 5cm cube on 7cm cube
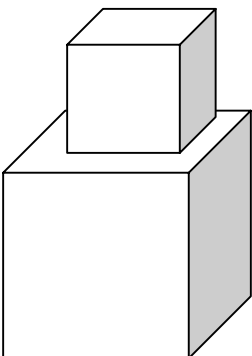
#4.) Cylinder next to Rectangular Prism

6 cm

5 cm

2 cm

7 cm

10 cm

#5.) 4m Cube on Triangular Prism
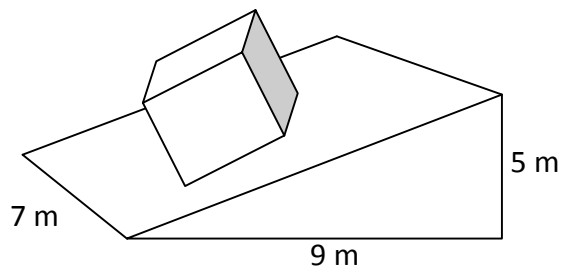
5 m

7 m

9 m

#6.)   The local curling rink is shown in the diagram at the right. It is to be painted.

   a) Determine the surface area of the structure.

   b) Both roofs, floors, the one window, and door are not to be painted. The door is 1 m by 2 m and the window is 4 m by 2 m. Determine the **surface area to be painted**.

   c) If the paint cost $2.25 per m^2 how much will the pain cost?

45 m

15 m

65 m

5 m

10 m

6 m
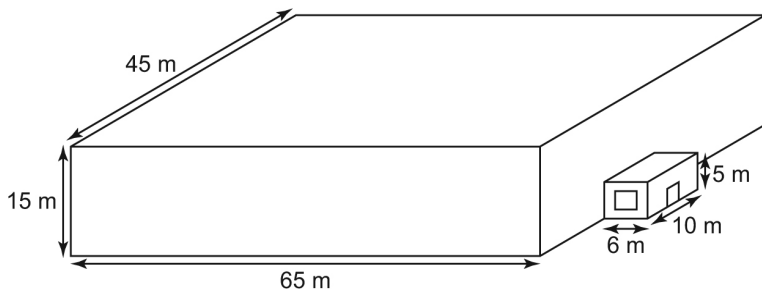
a)   Surface Area: _____

b)   Painted Surface Area: _____

c)   Total cost of paint: _____

MAD MINUTE

Find the ROOT of the following:

a) $\dfrac{225}{49} \rightarrow \dfrac{15}{7}$

b) $\dfrac{100}{64} \rightarrow \dfrac{10}{8}$

c) $\dfrac{9}{25} \rightarrow \dfrac{3}{5}$

d) $\dfrac{121}{100} \rightarrow \dfrac{11}{10}$

e) $\dfrac{64}{36} \rightarrow \dfrac{8}{6}$

f) $\dfrac{144}{64} \rightarrow \dfrac{12}{8}$

g) $\dfrac{16}{81} \rightarrow \dfrac{4}{9}$

h) $\dfrac{121}{64} \rightarrow \dfrac{11}{8}$

i) $\dfrac{81}{36} \rightarrow \dfrac{9}{6}$

j) $\dfrac{400}{4} \rightarrow \dfrac{20}{2} \rightarrow 10$

k) $\dfrac{81}{100} \rightarrow \dfrac{9}{10}$

l) $\dfrac{36}{900} \rightarrow \dfrac{6}{30} \rightarrow \dfrac{1}{5}$

m) $\dfrac{64}{1} \rightarrow \dfrac{8}{1} \rightarrow 8$

Find the square of the following:

a) $\dfrac{3}{2} \rightarrow \dfrac{9}{4}$

b) $\dfrac{5}{2} \rightarrow \dfrac{25}{4}$

c) $\dfrac{6}{7} \rightarrow \dfrac{36}{49}$

d) $\dfrac{10}{3} \rightarrow \dfrac{100}{9}$

e) $\dfrac{11}{6} \rightarrow \dfrac{121}{36}$

f) $\dfrac{12}{5} \rightarrow \dfrac{144}{25}$

g) $\dfrac{9}{7} \rightarrow \dfrac{81}{49}$

h) $\dfrac{9}{4} \rightarrow \dfrac{81}{16}$

i) $\dfrac{11}{12} \rightarrow \dfrac{121}{144}$

j) $\dfrac{7}{9} \rightarrow \dfrac{49}{81}$

k) $\dfrac{13}{6} \rightarrow \dfrac{169}{36}$

l) $\dfrac{4}{3} \rightarrow \dfrac{16}{9}$

m) $\dfrac{10}{7} \rightarrow \dfrac{100}{49}$

2. Determine the value of each square root and round to the 10th place.

a) $\sqrt{6.76}$

   2.6

b) $\sqrt{327.61}$

   18.1

c) $\sqrt{0.0025}$

   0.1 (from $0.05\underline{\underline{}}$↗) round up

d) $\sqrt{0.0225}$

   0.2

e) $\sqrt{11.6}$

   3.4

f) $\sqrt{0.39}$

   0.6

g) $\sqrt{\dfrac{21}{2}}$ 3.2

h) $\sqrt{\dfrac{11}{52}}$ 0.5
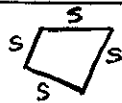
i) $\sqrt{14.29}$ 3.8

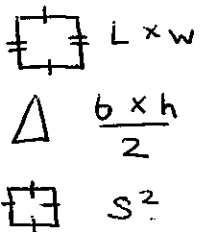j) $\sqrt{\dfrac{15}{8}}$ 1.4

k) $\sqrt{\dfrac{2}{19}}$ 0.3

l) $\sqrt{0.7}$ 0.8

What is the PERIMETER?

$P = S_1 + S_2 + S_3 + S_4$

What is an AREA? $L \times w$

$\triangle$ $\dfrac{b \times h}{2}$

s^2

The area of a square mat is **15.35 m²**.

↙ Hint!

a) Determine the **perimeter** of the mat.

I need side length!

Area $= 15.35 \, m^2$

$\sqrt{15.35}$ Root

$\boxed{3.9m \text{ one side}}$

＊Square mat Perimeter $= 3.9 + 3.9 + 3.9 + 3.9 = \boxed{15.6 \, m}$

b) The owner decides to make this area larger by adding on 20.20 m² of material to the mat.
   What is the new side length of the mat?
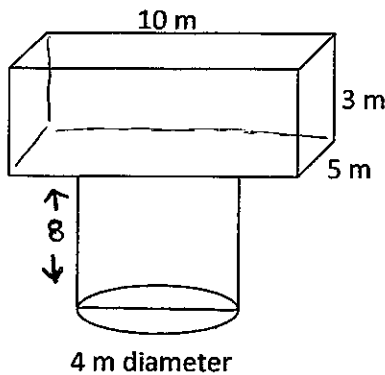
$15.35 m^2 + 20.20 m^2$

Area $\sqrt{35.55} = 5.96$

Describe how your find the TOTAL SURFACE AREA of COMPOSITE OBJECTS.

1) Find each area separately and then add it together!
2) Lost Faces (Take 2 to tango)
   Subtract
3) Find total Surface area!

3-D Shapes REVIEW NOTES

Rectangular Prism on Cylinder (4 marks)

10 m
3 m
5 m
8
4 m diameter

2 circles are Lost	

12.56×2

$25.12 \ m^2$

$125.6 \ m^2 + 190 \ m^2$
$- 25.12 \ m^2$

Total: $290.48 \ m^2$

Cylinder

$A_o = \pi r r$
$3.14 (2)(2)$
$= 12.56 \ m^2$

$A_o = \pi r r$
$3.14 (2)(2)$
$= 12.56 \ m^2$

$A_\square = 2 \pi r h$

$2 (3.14)(2)(8)$
$= 100.48 \ m^2$

TSA: $125.6 \ m^2$

Rectangular Prism

$S_1 = 5 \times 3 = 15 \ m^2$
$S_2 = 15 \ m^2$
$F = 10 \times 3 = 30 \ m^2$
$B = 30 \ m^2$
$T = 10 \times 5 = 50 \ m^2$
$B = 50 \ m^2$

TSA: $190 \ m^2$

Cube on Triangular Prism (4 marks)

6 m
5 m
12 m
8 m
10 m

2 squares are LOST
$36 \times 2 = 72 \ m^2$

$216 \ m^2 + 266 \ m^2$
$- 72 \ m^2$
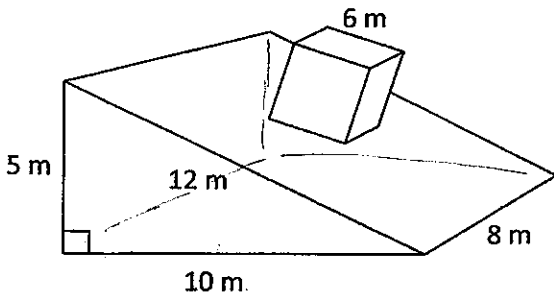
Total: $410 \ m^2$

Cube

$S_1 = 6 \times 6 = 36 \ m^2$
There are 6
sides...

36×6
$= 216 \ m^2$

TSA: $216 \ m^2$

Triangular Prism

$A_\triangle = \dfrac{6 \times h}{2} = \dfrac{10 \times 5}{2}$
$= 25 \ m^2$

$A_\triangle = 25 \ m^2$

$A_\square = 8 \times 12 = 96 \ m^2$

$A_\square = 5 \times 8 = 40 \ m^2$

$A_\square = 10 \times 8 = 80 \ m^2$

TSA: $266 \ m^2$

#1) **Cylinder on Rectangular Prism**

Cylinder

$A_o = \pi \cdot r \cdot r$

$3.14(2.5)(2.5)$

$= \boxed{19.625 \, cm^2}$

$A_o = \boxed{19.625 \, cm^2}$

$A_\square = 2 \cdot \pi \cdot r \cdot h$

$2(3.14)(2.5)(6)$

$= \boxed{94.2 \, cm^2}$

Total: $133.45 \, cm^2$
SA

Rectangular Prism

$S_1 = 8 \times 8 = \boxed{64 \, cm^2}$

$S_2 = \boxed{64 \, cm^2}$

$T = 10 \times 8 = \boxed{80 \, cm^2}$

$B = \boxed{80 \, cm^2}$

$F = \boxed{80 \, cm^2}$

$B = \boxed{80 \, cm^2}$

Total: $448 \, cm^2$
SA

5 cm

6 cm

8 cm

8 cm

10 cm
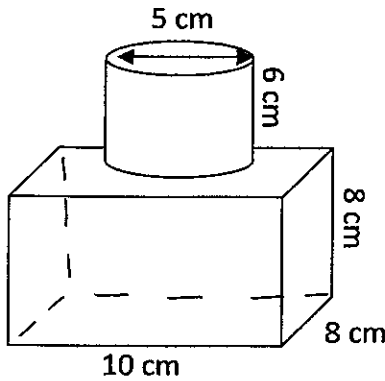
Lost Faces 2 circles
$133.45 + 448 \, cm^2$
$- \quad 39.25 \, cm^2$

Total: $\boxed{542.2 \, cm^2}$

#2) **4m cube on 8m cube**
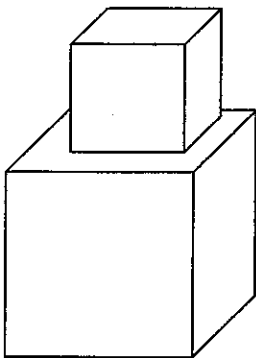
Cube #1

$4 \times 4 = 16 \, cm^2$
$\times 6$
$\boxed{96 \, cm^2}$

Cube #2

$8 \times 8 = 64 \, cm^2$
$\times 6$
$\boxed{384 \, cm^2}$

Total $96 + 384$
$- \quad 32$ Lost Faces Small (16×2)
$\boxed{448 \, m^2}$

#3) **5cm cube on 7cm cube**
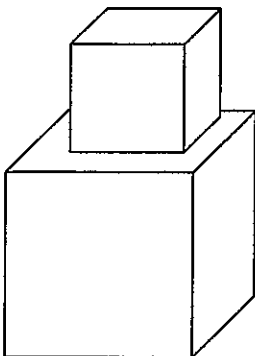
Cube #1

$5 \times 5 = 25 \, cm^2$
$\times 6$
$\boxed{150 \, cm^2}$

Cube #2

$7 \times 7 = 49 \, cm^2$
$\times 6$
$\boxed{294 \, cm^2}$

Total $150 + 294$
$- \quad 50$ (Lost Faces Small 25×2)
$\boxed{394 \, cm^2}$

#4)

6 cm
7 cm
10 cm
5 cm
2 cm

Cylinder

$A_o = \pi \times r \times r$

$(3.14)(1)(1)$

3.14 cm^2

$A_o = 3.14 \text{ cm}^2$

$A_{\smile} = 2\pi r h$

$2(3.14)(1)(5)$

31.4 cm^2

T.S.A. 37.68 cm^2

Rectangular Prism

$S_1 = 7 \times 6 = 42 \text{ cm}^2$

$S_2 = 42 \text{ cm}^2$

$F = 7 \times 10 = 70 \text{ cm}^2$

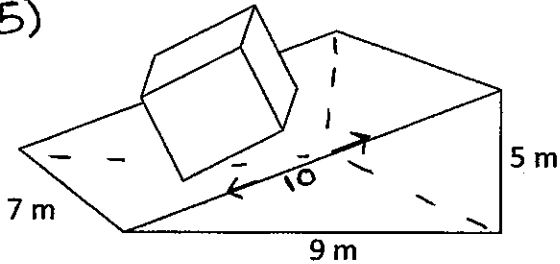$B = 70 \text{ cm}^2$

$T = 6 \times 10 = 60 \text{ cm}^2$

$B = 60 \text{ cm}^2$

T.S.A.
344 cm^2
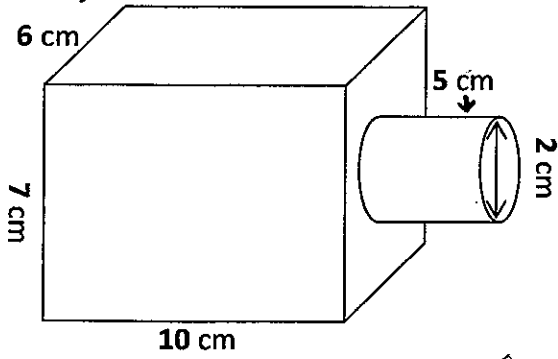
Lost Faces
3.14×2
$= 6.28 \text{ cm}^2$

$37.68 + 344$
$\quad - 6.28$

Total → 375.4 cm^2

#5)

4m Cube on Triangular Prism

7 m
9 m
5 m
10

Cube

1 FACE
$4 \times 4 = 16 \text{ m}^2$
$\times 6$
96 m^2

Triangular Prism

$A_\triangle = \dfrac{b \times h}{2} = \dfrac{9 \times 5}{2}$

$= 22.5 \text{ m}^2$

$A_\triangle = 22.5 \text{ m}^2$

$A_\square = 5 \times 7 = 35 \text{ m}^2$

$A_\square = 7 \times 10 = 70 \text{ m}^2$

$A_\square = 7 \times 9 = 63 \text{ m}^2$

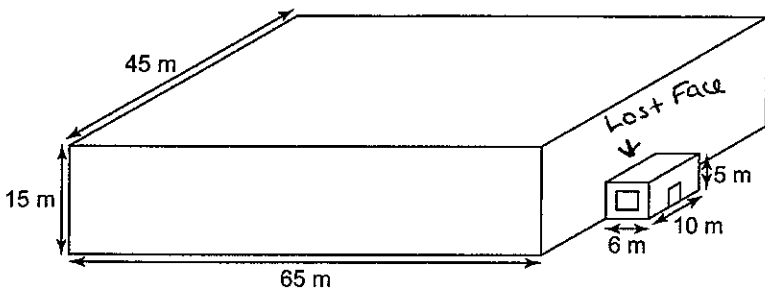T.S.A. 213 m^2

Lost Faces
16×2 Small square
32 m^2

$96 \text{ m}^2 + 213 \text{ m}^2$
$\quad - 32 \text{ m}^2$

Total: 277 m^2

#6.) The local curling rink is shown in the diagram at the right. It is to be painted.

a) Determine the surface area of the structure.

b) Both roofs, floors, the one window, and door are not to be painted. The door is 1 m by 2 m and the window is 4 m by 2 m. Determine the **surface area to be painted**.

c) If the paint cost $2.25 per m² how much will the pain cost?

Large   Small

$S_1 = 45 \times 15$ 10×5
$\boxed{675 \text{ m}^2}$ $\boxed{50 \text{ m}^2}$

$S_2 = 45 \times 15$ 10×5
$\boxed{675 \text{ m}^2}$ $\boxed{50 \text{ m}^2}$

$T = 45 \times 65$ 10×6
$\boxed{2925 \text{ m}^2}$ $\boxed{60 \text{ m}^2}$

$B = 45 \times 65$ $\boxed{60 \text{ m}^2}$
$\boxed{2925 \text{ m}^2}$

$F = 15 \times 65$ 6×5
$\boxed{975 \text{ m}^2}$ $= \boxed{30 \text{ m}^2}$

$B = \boxed{975 \text{ m}^2}$ $= \boxed{30 \text{ m}^2}$

Lost Faces $\quad 10 \times 5 =$
$50 \text{ m}^2 \times 2 = 100 \text{ m}^2$
$9150 \text{ m}^2 + 280 \text{ m}^2$
$- 100 \text{ m}^2$
$\Rightarrow \{9330 \text{ m}^2\}$

Not painted

9330
$- 5850 \quad (\text{Roof + floor})$
$- 120 \quad (\text{Roof + floor})$
$- 2 \quad (\text{Door})$
$- 8 \quad (\text{Window})$
$\Rightarrow \{3350 \text{ m}^2\}$

T.S. A. 9150 m²   280 m²

$3350 \times \overset{\$}{2.25}$ paint
$\Rightarrow \$7537.50$

a) Surface Area: $\underline{9330 \text{ m}^2}$

b) Painted Surface Area: $\underline{3350 \text{ m}^2}$

c) Total cost of paint: $\underline{\$7537.50}$