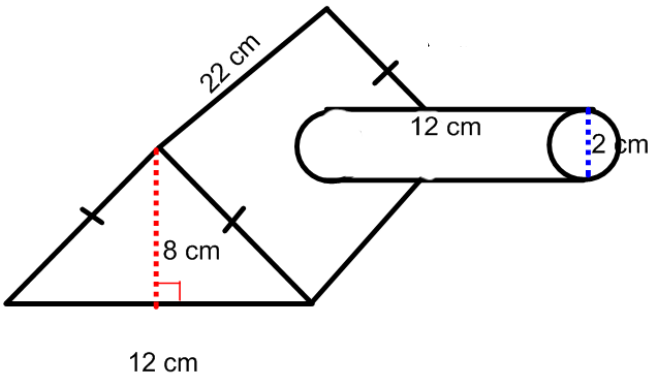
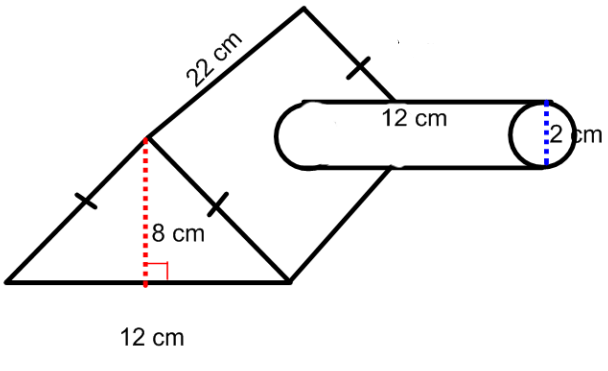
Warm Up

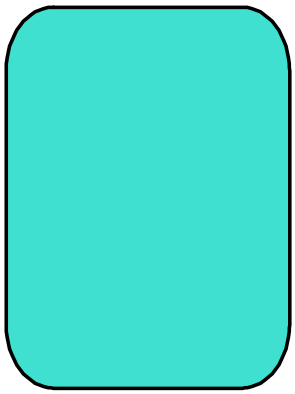
Find the total surface area



Warm Up

Find the total surface area





Cylinder

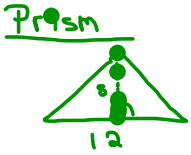
$SA = 2\pi r^2 + 2\pi rh$

$= 2(3.14)(1)^2 + 2(3.14)(1)(12)$

$= 6.28 + 75.36$

$= 81.64 \text{ cm}^2$

Prism



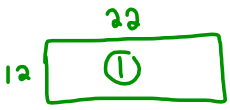
$A = \frac{b \times h}{2}$

$A = \frac{12 \times 8}{2}$

$A = 48$

$2A_\Delta = 96 \text{ cm}^2$

+

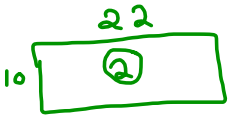


$A = b \times h$

$A = 12 \times 22$

$A = 264 \text{ cm}^2$

+



$A = b \times h$

$A = 10 \times 22$

$A = 220$

$2A = 440$

$SA = 800 \text{ cm}^2$

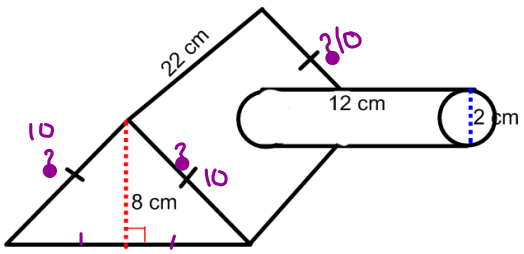
$TSA =$ Prism + cylinder − over

$= 800 + 81.64 - 6.28$

$= 875.36 \text{ cm}^2$

Warm Up

Find the total surface area



$c^2 = a^2 + b^2$

$c^2 = 8^2 + 6^2$

$c^2 = 64 + 36$

$\sqrt{c^2} = \sqrt{100}$

$c = 10$

Prism

$A = \frac{b \times h}{2}$

$A = \frac{12 \times 8}{2}$

$A = 48$

$2A_b = 96\ cm^2$

$A = b \times h$

$A = 12 \times 22$

$A = 264\ cm^2$

$A = b \times h$

$A = 10 \times 22$

$A = 220$

$2A = 440$

$SA = 800\ cm^2$

cylinder

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

$= 2(3.14)(1)^2 + 2(3.14)(1)(12)$

$= 6.28 + 75.36$

$= 81.64\ cm^2$

overlap

(2) $A = \pi r^2$

$2A = 2(\pi r^2)$

$= 2(3.14)(1)^2$

$= 6.28\ cm^2$

$TSA = \text{Prism} + \text{cylinder} - \text{overlap}$

$= 800 + 81.64 - 6.28$

$= 875.36\ cm^2$

Test
Tuesday/Wednesday, Nov 28/29

Square roots and perfect squares

Surface area of composite objects

Test

Square roots and perfect squares

Area of a square = $(\text{side})^2$ Side of square = $\sqrt{\text{area of square}}$

- square root is 2.4 means find the perfect square # so multiply by itself

- is it a perfect square
take the square root and if the decimal stops or repeats then the number was perfect

- square root of fraction take square root of top and bottom
or check top and bottom of a fraction

- bench marks find the perfect square that the number falls between

Perfect Squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

section 1.1 to 1.2

Surface area of composite objects

section 1.3 & 1.4

Area of square

The Area of a square is 124 m^2, what is the length of the side?

$A = b^2$

$\sqrt{124} = \sqrt{b^2}$

$11.1 = b$

$P = 4(side)$

$= 4(11.1)$

$= 44.4$

Perfect Squares

$(1)^2 = 1 \times 1 = \mathbf{1}$

$(2)^2 = 2 \times 2 = \mathbf{4}$

$(3)^2 = 3 \times 3 = \mathbf{9}$

$(4)^2 = 4 \times 4 = \mathbf{16}$

$(5)^2 = 5 \times 5 = \mathbf{25}$

$(6)^2 = 6 \times 6 = \mathbf{36}$

$(7)^2 = 7 \times 7 = \mathbf{49}$

$(8)^2 = 8 \times 8 = \mathbf{64}$

$(9)^2 = 9 \times 9 = \mathbf{81}$

$(10)^2 = 10 \times 10 = \mathbf{100}$

$(11)^2 = 11 \times 11 = \mathbf{121}$

$(12)^2 = 12 \times 12 = \mathbf{144}$

$(13)^2 = 13 \times 13 = \mathbf{169}$

$(14)^2 = 14 \times 14 = \mathbf{196}$

$(15)^2 = 15 \times 15 = \mathbf{225}$

$(16)^2 = 16 \times 16 = \mathbf{256}$

$(17)^2 = 17 \times 17 = \mathbf{289}$

$(18)^2 = 18 \times 18 = \mathbf{324}$

$(19)^2 = 19 \times 19 = \mathbf{361}$

$(20)^2 = 20 \times 20 = \mathbf{400}$

$(21)^2 = 21 \times 21 = \mathbf{441}$

$(22)^2 = 22 \times 22 = \mathbf{484}$

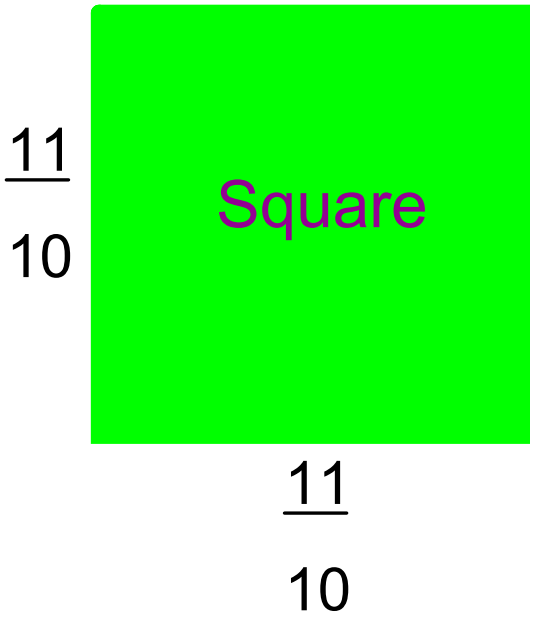
$(23)^2 = 23 \times 23 = \mathbf{529}$

$(24)^2 = 24 \times 24 = \mathbf{576}$

$(25)^2 = 25 \times 25 = \mathbf{625}$

What is the area of the following

What is the area?



$A = b \times b$

$A = b^2$

$A = \left(\frac{11}{10}\right)^2$

$A = \frac{121}{100}$

What is the perimeter?

$P = 4(\text{side})$

$= \frac{4}{1}\left(\frac{11}{10}\right)$

$= \frac{44}{10}$

Area of square = $\frac{49}{81}$ cm^2

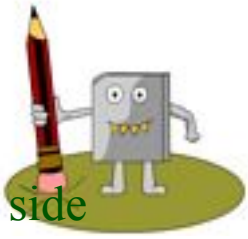
What is the length of the sides?

$x = \frac{7}{9}$

What it the perimeter of the square

$P = \frac{28}{9}$

You Try!!!!



For each area of a sqaure find the length of its side

**Find the square root

1) $\frac{16}{100}$

2) $\frac{9}{100}$

3) $\frac{400}{100}$

4) $\frac{256}{100}$

Warm Up Math 9

1) Find the perfect square whose square root is

a) 0.6

$\sqrt{x} = 0.6$

- $x = 0.36$

b) $\frac{3}{5}$

$\sqrt{y} = \frac{3}{5}$

$y = \frac{9}{25}$

2) Is the following fractions or decimals perfect squares? Explain

a) 0.64

P.S

b) 62.5

N.P.S

c) $\frac{49}{144}$

P.S

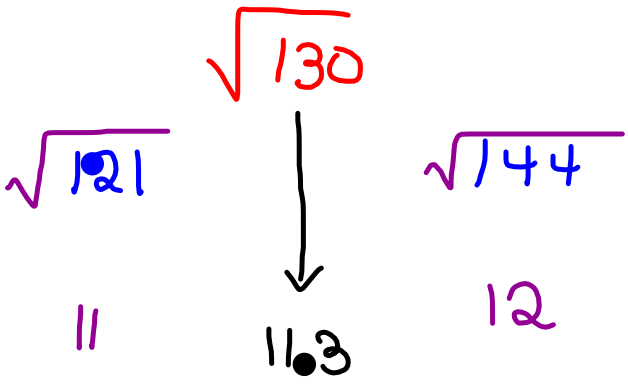
d) $\frac{13}{25}$

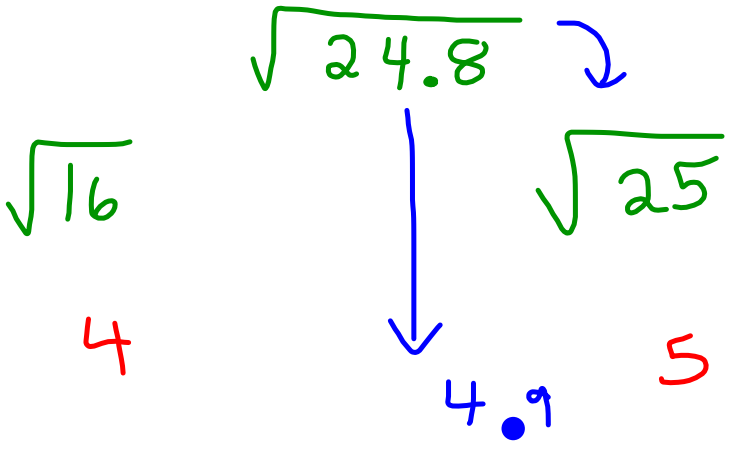
N.P.S

$\frac{72}{50} = \frac{36}{25}$

P.S

Estimate the square root of 130





To Determine if a Fraction is a Perfect Square

BOTH Numerator and Denominator MUST be Perfect Square Numbers

***Simplify fractions first ***

$$\frac{27 \div 9}{45 \div 9} = \frac{3}{5}$$

Is each fraction a perfect square? Explain

a) $\frac{18}{32}$

b) $\frac{4}{3}$

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

Identifying Decimals that are Perfect Squares

$$1.44$$

Method 1

Write the decimal as a fraction

$$\frac{144}{100}$$

Simplify the fraction. Divide the numerator and denominator by 4.

$$1.44 = \frac{36}{25}$$

$$= \frac{6}{5} \text{ X } \frac{6}{5}$$

THUS 1.44 is a perfect square

Method 2

Use a Calculator.

Use the square root button $\sqrt{\ }$

$$\sqrt{1.44} = 1.2$$

Since the sqaure root is a terminating decimal then 1.44 is a perfect square.

Without a calculator

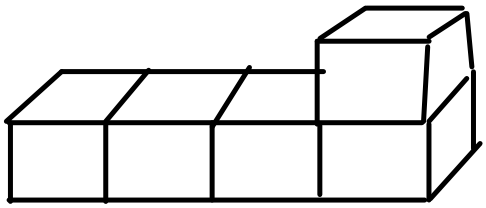
Determine if the decimal is a perfect square?

1.69

perfect square

0.016

not perfect



1 x 1 x 1

A = b x h

1 x 1

1 cm²

5 x 6 = 30 faces − 4 overlap

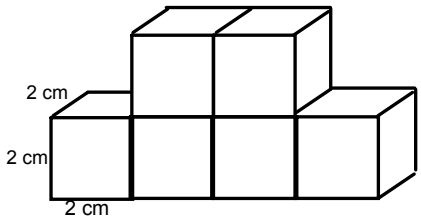
= 30 faces − 8 faces

= 22 faces

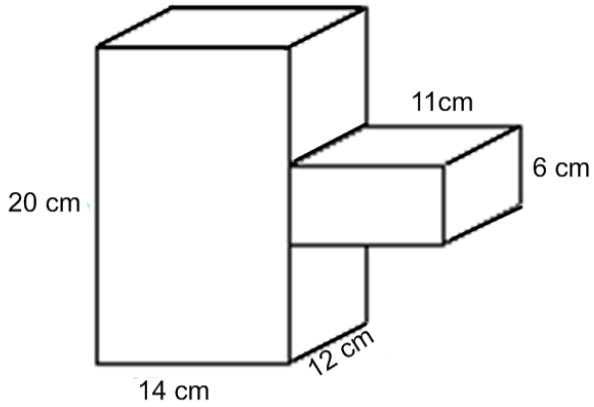
x 1 cm²

22 cm²

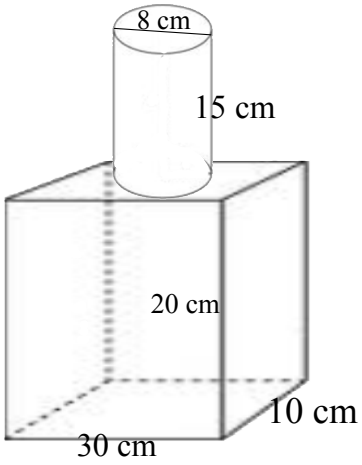
Calculate the surface area of the following shape: (Show ALL WORK)



Calculate the total surface area of the following: (Show all work)



How much paint is needed to cover the following shape?



You try!!!

Overlap

Cylinder

Area of Cylinder = $2\pi r^2 + 2\pi rh$

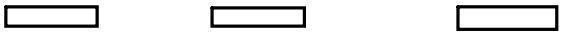
$= 2(3.14)(\_4\_)^2 + 2(3.14)(\_4\_)(\_15\_)$

$= 2(3.14)(\_16\_) + 2(3.14)(\_4\_)(15)$

$= 100.48 + 376.8$

$= 477.28$

Rectangular Prism



Top
A = 30 cm x 10 cm
= 300 cm^2
2A=600

A = 20 cm x 30 cm
= 600 cm^2
2 A=1200

A = 10 cm x 20 cm
= 200 cm^2
2A = 400

Total SA small = 2Top +2Side +2Front
= 600 cm^2 + 1200cm^2 + 400cm^2
= 2200cm^2

Overlap Area = πr^2

$= 3.14(4)^2$

$= 3.14(16)$

$= 50.24$ x2 = 100.48

Total Surface Area = cylinder + Prism - (Overlap area)

= 477.28 + 2200 cm^2 - 2(50.24cm^2)

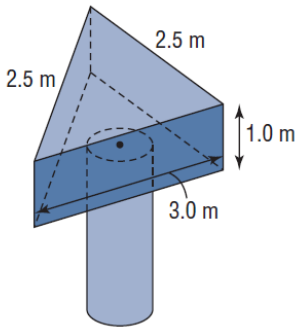
= 477.28 + 2200 cm^2 - 100.48 cm^2

= 2677.28 cm^2 - 100.48 cm^2

= 2576.8 cm^2

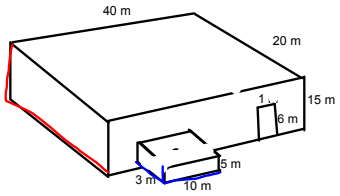
5. Determine the surface area of each composite object.

a) The cylinder is 2.5 m long with radius 0.5 m.



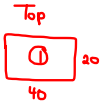
Find the area of the warehouse with the attached storage space.

(Think if you were going to paint this....How much paint is needed???)



Step 1) Calculate the sides of all of the larger prism, (40m x 20m x 15m)

Top



$A_1 = b \times h$

$A_1 = 40 \times 20$

$A_1 = 800\ m^2$

left / Right

$A_2 = b \times h$

$A_2 = 20 \times 15$

$A_2 = 300\ m^2$

$2A_2 = 600\ m^2$

Front / back

$A_3 = b \times h$

$A_3 = 40 \times 15$

$A_3 = 600\ m^2$

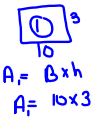
$2A_3 = 1200\ m^2$

So surface area of the storage space is:

$$SA_1 = A_1 + 2A_2 + 2A_3$$
$$= 800 + 600 + 1200$$
$$= 2600\ m^2$$

Step 2) Storage space consist of 3 walls and a roof (3m x 10m x 5m)

Top



$A_1 = B \times h$

$A_1 = 10 \times 3$

$A = 30\ m^2$

left/Right

$A_2 = b \times h$

$A_2 = 3 \times 5$

$A_2 = 15\ m^2$

$2A_2 = 30\ m^2$

Front/back

$A_3 = b \times h$

$A = 10 \times 5$

$A = 50\ m^2$

$2A_3 = 100\ m^2$

So surface area of the storage space is:

$$SA = A_1 + 2A_2 + 2A_3$$
$$= 30 + 30 + 100$$
$$= 160\ m^2$$

Overlap

$A = 50\ m^2$

$2A = 100\ m^2$

door

$A = 1m \times 6m$

$A = 6m^2$

$$TSA = SA_1 + SA_2 - \text{overlap} - \text{door}$$
$$= 2600 + 160 - 100 - 6$$
$$= 2654\ m^2$$

Class / Homework

Review For Test

- Handout: Surface Area Worksheet

Questions: 1-6

answers were on the board

- Questions from Textbook:

page 45 - 46

#2(b, d, f, h)
#3(a,b,c,d,e)
#4(a,d)
#5 (a, c, e)
#6 (b,d)
7(ad)
12ac
#13ab
#15(bc)
#16(bc)
#19(a)

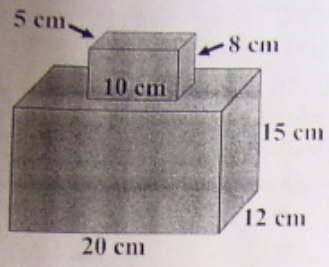
Page 48

5 Warehouse question

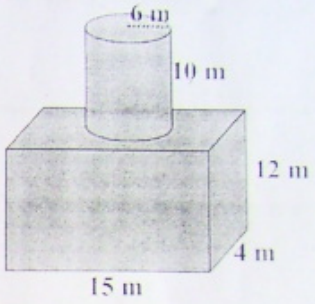
ASSIGNMENT – SURFACE AREA OF COMPOSITE OBJECTS

Determine the surface area of each composite object. Round answers to the nearest tenth, where necessary. Show ALL work on loose-leaf.

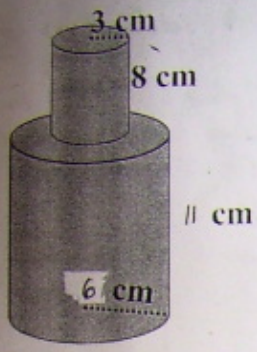
1.



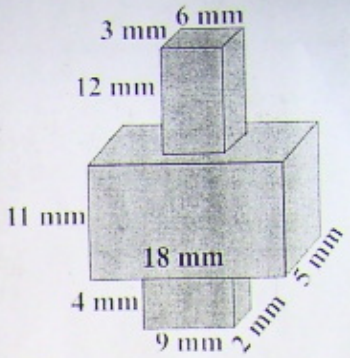
2.



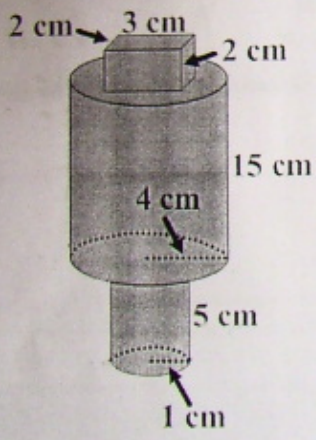
3.



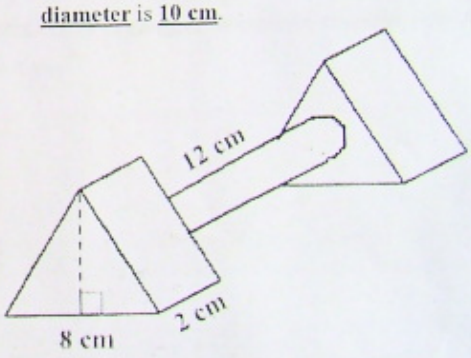
4.



5.



6. The cylinder below is connected to two **IDENTICAL EQUILATERAL TRIANGULAR prisms.** The cylinder's **diameter** is **10 cm**.



Surface Area

Test Review Worksheet

1) $1680\ cm^2$

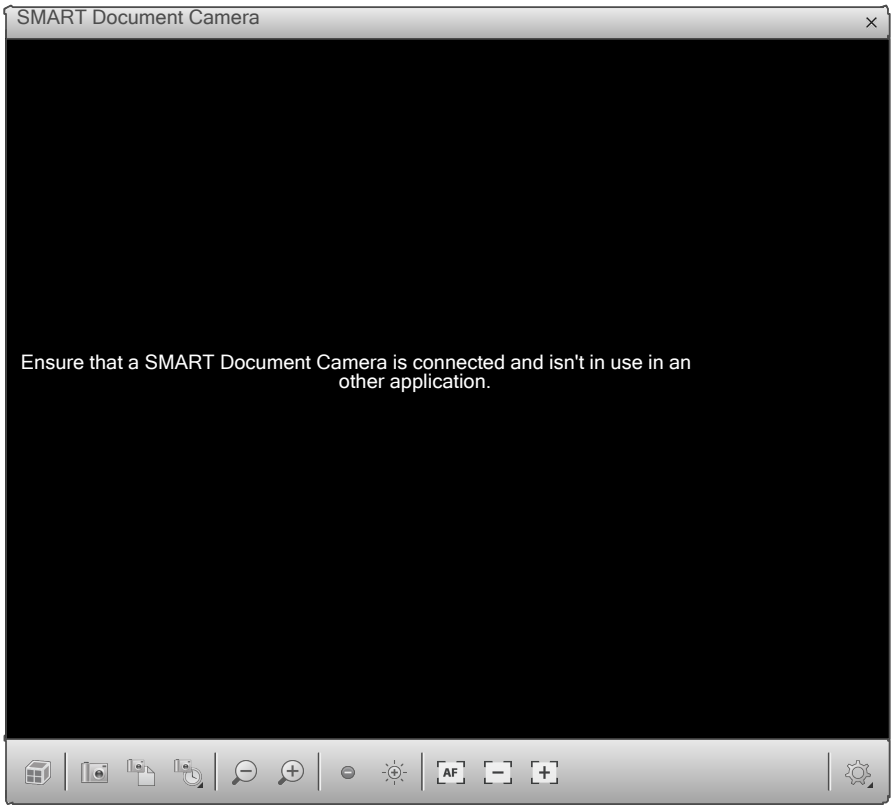
2) $953m^2$

3) $791.7\ cm^2$

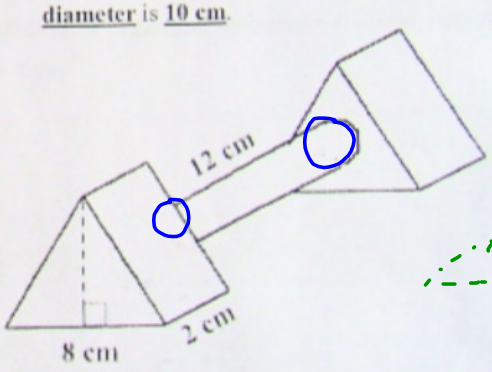
4) $990\ mm^2$

5) $528.9\ cm^2$

6) $426.8\ cm^2$


SMART Document Camera
Ensure that a SMART Document Camera is connected and isn't in use in an other application.
AF

6. The cylinder below is connected to two **IDENTICAL EQUILATERAL TRIANGULAR prisms.** The cylinder's **diameter** is **10 cm**.

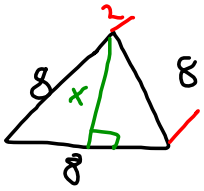


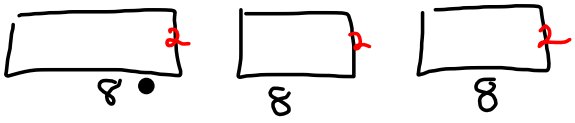
$x^2 = 8^2 - 4^2$

$= 64 - 16$

$\sqrt{x^2} = \sqrt{48}$

$x = 6.9$





$A = \frac{b \times h}{2}$

$A = \frac{8 \times 6.9}{2}$

$A = 27.6$

$2A = 55.2$

$A = 8 \times 2$

$A = 16$

16 16

$SA_1 = 55.2 + 16 + 16 + 16$

$= 103.2 \text{ cm}^2$

$SA_2 = 103.2 \text{ cm}^2$

Cylinder: $r = 5$ $h = 12$

$SA_3 = 2\pi r^2 + 2\pi rh$

over lap ×2 $= 2\pi(5)^2 + 2\pi(5)(12)$

$= 157 + 376.8$

$= 533.8 \text{ cm}^2$

$TSA = SA_1 + SA_2 + SA_3 - OV - OV$

$= 103.2 + 103.2 + 533.8 - 157$

-157

$= 426.2$