Grade 9 Math – Unit 1 Assignment 2 Practice

Name:_____

B

1. What is the length of one side of a square garden with area of 7.84 m^2?

A) 1.96 m B) 2.8 m C) 3.92 m D) 31.36 m

Side length = $\sqrt{\text{Area}} = \sqrt{7.84} = 2.8$

C

2. Assuming that the area of each face is 1 cm^2 , what is the surface area of the object below?

A) 6 cm^2

B) 13 cm^2

C) 26 cm^2

D) 36 cm^2

(6 × # of cubes) − (2 × # of overlaps)

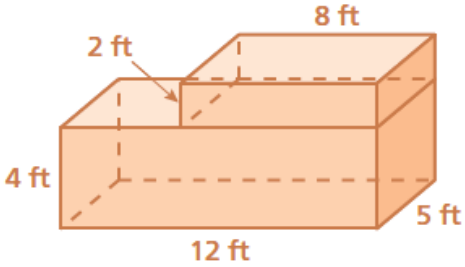
= (6 × 6) − (2 × 5)

= 36 − 10

= 26

D

3. If you were calculating the entire surface area of the object below, what is the area of the region you would need to subract from your total?



overlap = 2 (8 × 5) = 80

A) 10 ft^2 B) 16 ft^2 C) 40 ft^2 D) 80 ft^2

B

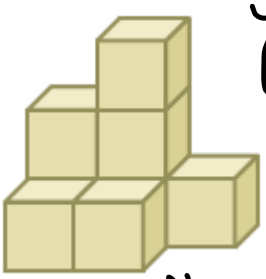
4. Assuming that the area of each face is 1 cm^2 , how does the total surface area of the object below change if you remove the block on the right?

A) Decreases by 3.

B) Decreases by 4.

C) Decreases by 5.

D) Decreases by 6.



original

(6 × 8) − (2 × 8)

= 48 − 16

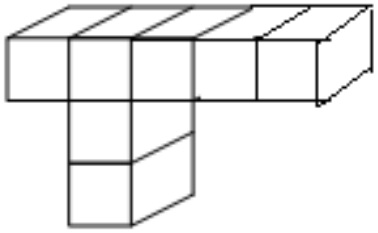
= 32

New

(6 × 7) − (2 × 7)

= 42 − 14 = 28

5. This object is made using centimeter cubes. Determine its surface area.



(6 × # of cubes) − (2 × # of overlaps)

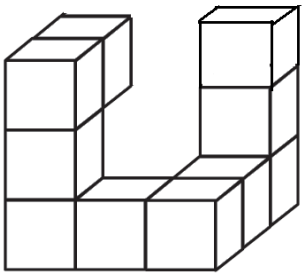
$= (6 \times 7) - (2 \times 6)$

$= 42 - 12$

$= 30\ cm^2$

6. This object is made using cubes <u>where each side length is 3 cm</u>. Determine its surface area.

Surface Area of one block $6(3 \times 3) = 54$



(54 × # of cubes) − (2 × # of overlaps × 9)

$= (54 \times 10) - (2 \times 9 \times 9)$

$= 540 - 162$

$= 378\ cm^2$

7. Find the total surface area of the composite object below.

S.A Triangular Prism:

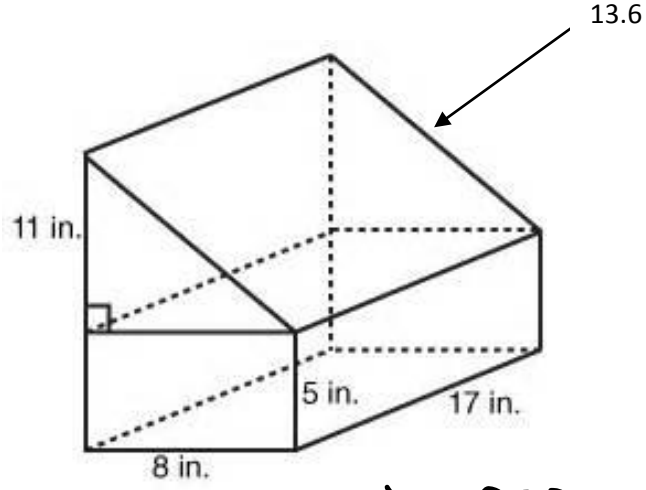
F & B: $2\left(\frac{8 \times 11}{2}\right) = 88$

Bottom: $8 \times 17 = 136$

Left: $11 \times 17 = 187$

Right: $17 \times 13.6 = 231.2$

642.2



S.A Rectangular Prism:

T & B: $2(8 \times 17) = 272$

L & R: $2(5 \times 17) = 170$

F & B: $2(8 \times 5) = 80$

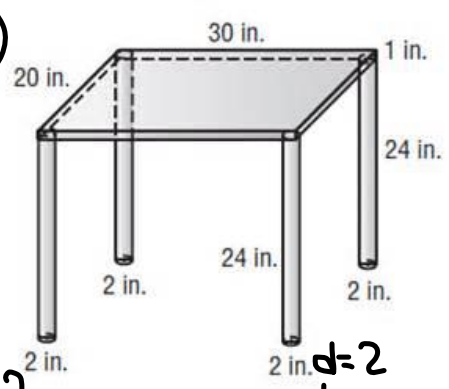
522

overlap $= 2(8 \times 17) = 272$

T.S.A $= 642.2 + 522 - 272$

$= 892.2\ in^2$

8. Mr. Walters decides to build a table so that all the math teachers can get together and eat lunch together. He decides he should paint the table. What is the total surface area of the table that will need to be painted?



S.A Rectangular Prism:

F & B: $2(1 \times 30) = 60$

L & R: $2(1 \times 20) = 40$

T & B: $2(30 \times 20) = 1200$

$60 + 40 + 1200 = 1300$

Overlap: $2(\pi r^2)$

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

$= 6.28$

4 overlaps:

$4 \times 6.28 = 25.12$

$d = 2$

$r = 1$

$S.A_{cylinder} = [2\pi r^2] + [2\pi rh]$

$= [2 \cdot 3.14 \cdot 1^2] + [2 \cdot 3.14 \cdot 1 \cdot 24]$

$= 6.28 + 150.72 = 157$ .... $157 \times 4 = 628$ (4 legs)

T.S.A $= 1300 + 628 - 25.12$

$= 1902.88 \text{ in}^2$

B) If a can of paint covers 800 in^2, how many cans will he need to buy for two coats of paint?

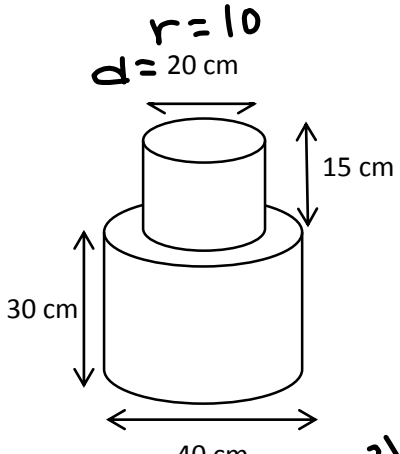
2 coats $= 2 \times 1902.88 = 3805.76$

Cans of paint $= 3805.76 \div 800 = 4.7572$

He needs 5 cans of paint

9. Jill is icing a cake. **If she does not ice the bottom or between the 2 layers**, what is the total surface area of the cake to be iced?

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



S.A Top: $[2 \cdot 3.14 \cdot 10^2] - [2 \cdot 3.14 \cdot 10 \cdot 15]$

$= 628 + 942$

$= 1570$

S.A Bottom: $[2 \cdot 3.14 \cdot 20^2] + [2 \cdot 3.14 \cdot 20 \cdot 30]$

$= 2512 + 3768$

$= 6280$

Overlap: $2(\pi r^2) = 2(3.14 \cdot 10^2)$

$= 628$

Bottom: $\pi r^2 = 3.14 \cdot 20^2$

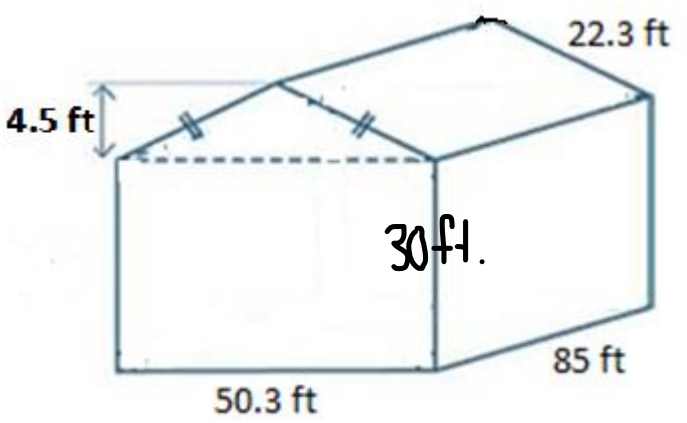
$= 1256$

Total Deductions = 1884

T.S.A $= 1570 + 6280 - 1884$

$= 5966 \text{ m}^2$

10. The sketch of a house is given below. The owner wants to put a waterproof sealant on all exterior surfaces before she applies the roof shingles and vinyl siding. The house will have a front door measuring 2 by 8, two windows measuring 2 by 3, and a third window measuring 5 by 8. What will the total surface area of the house be to be covered with this waterproof sealant?



S.A of Roof:

F & B: $2\left(\frac{50.3 \times 4.5}{2}\right) = 226.35$

L & R: $2(85 \times 22.3) = 3791$

4017.35

S.A Walls:

F & B: $2(50.3 \times 30) = 3018$

L & R: $2(85 \times 30) = 5100$

8118

Door: $2 \times 8 = 6$

windows: $2(2 \times 3) = 12$

window: $5 \times 8 = 40$

58

T.S.A $= 4017.35 + 8118 - 58$

$= 12\,077.35 ft^2$