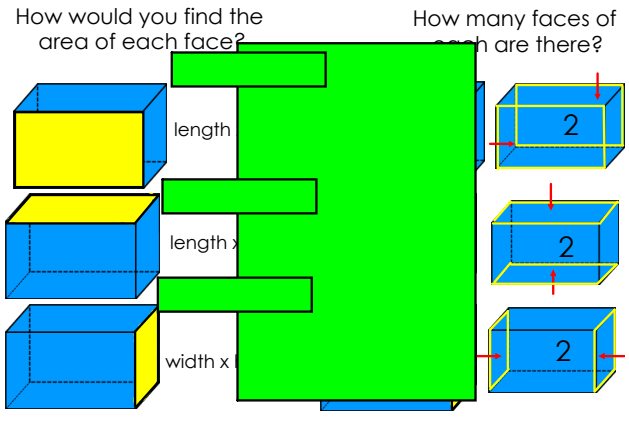
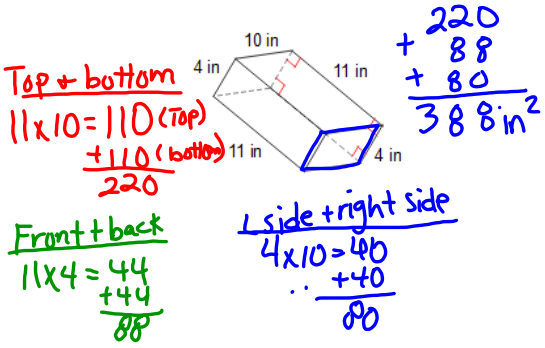
Surface Area of Prisms (Rectangular & Triangular)

What is a prism?
A prism is a 3-D shape that has the same shape for both bases.

What is surface area?
the area of all of the surfaces of a 3D shape added together



Find the Surface Area



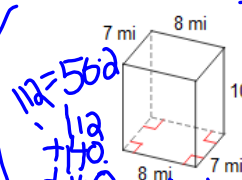
Find the Surface Area

306 km²

TSB = 81 + 81 = 162

Sides = 36 + 36 = 72

153 km² + 72



112 = 56

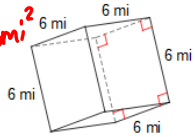
+ 112

+ 140

+ 160

412 mi²

How would you find the area of a cube?

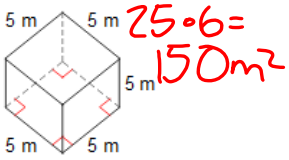


36 x 6 = 216 mi²

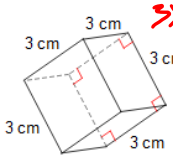
Formula for a square? _____

How many sides does a cube have? 6

Find the Surface Area



25 · 6 = 150 m²

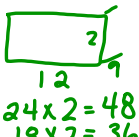


3 x 3 = 9

9 x 6 = 54

54 cm²

Molly makes a rectangular cake that is 12 inches long, 9 inches wide, and 2 inches high. If she covers the cake in frosting, how many square inches of frosting does she need?



24 x 2 = 48

18 x 2 = 36

108 x 2 = 216

300 in²

12 · 9 = 108

396 in²

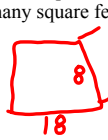
+ 216

48

80

32

You are painting a room that is 18 ft long, 14 ft wide and 8 ft high. How many square feet of paint do you need to paint the walls



14 x 8

112

18 · 8

144

256 ft²

512

18 x 8 = 144 x 2 = 288

14 x 8 = 112 x 2 = 224

Triangular Prism

Surface Area = sum of the area of the faces

2 congruent triangles

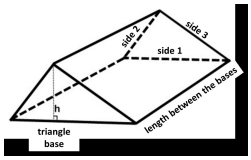
$A_T = \frac{1}{2} b h$

3 rectangles

A_1 = side 1 X length between the bases

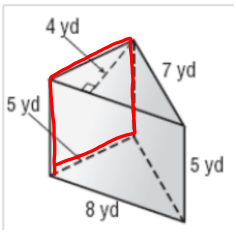
A_2 = side 2 X length between the bases

A_3 = side 3 X length between the bases



Surface Area = $2A_T + A_1 + A_2 + A_3$

Calculate the surface area of the triangular prism.



$A_T = \frac{8 \times 4}{2} = \frac{32}{2} = 16 \times 2 = 32$

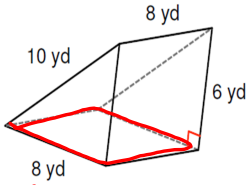
$A_1 = 8 \times 5 = 40$

$A_2 = 5 \times 5 = 25$

$A_3 = 7 \times 5 = 35$

$132 yd^2$

Calculate the surface area of the triangular prism.



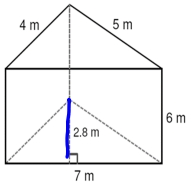
$A_T = \frac{8 \times 6}{2} = 24 \times 2 = 48$

$A_1 = 8 \times 6 = 48$

$A_2 = 8 \times 10 = 80$

$A_3 = 8 \times 8 = 64$

$240 yd^2$



$A_T = 19.6$ $A_3 = 30$

$A_1 = 42$

$A_2 = 24$

$115.6 m^2$