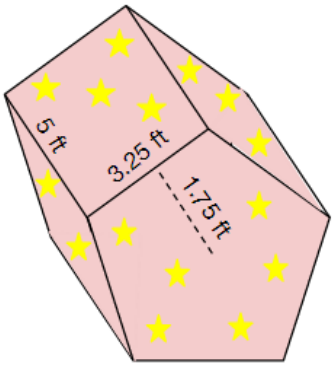
Find the surface area of a pentagonal prism by finding the area of a 2D net, Practice Set C

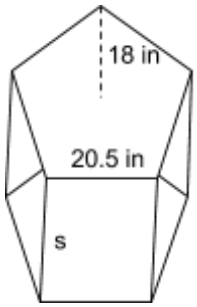
Name:

Date:

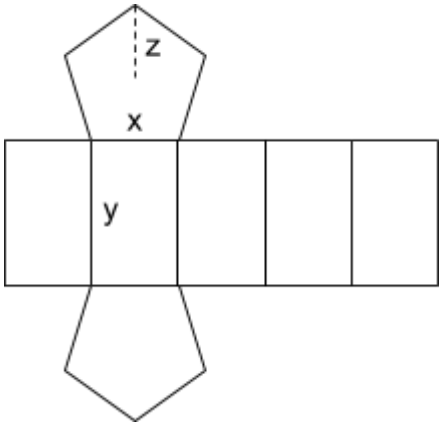
1. Matthew is wrapping a birthday gift for his brother. He has 100 ft^2 of wrapping paper. Will that be enough?



2. The regular pentagonal prism has a surface area of 3,485 in^2. Determine the value for s.



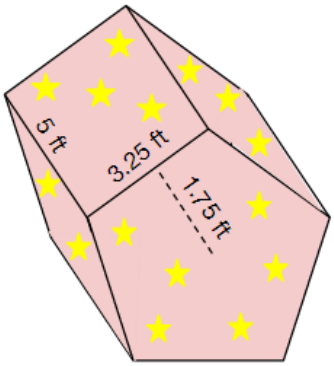
3. Determine the values of x, y, and z that could be a regular pentagonal prism with a surface area between 2,000 in^2 and 3,000 in^2. Find three possibilities.

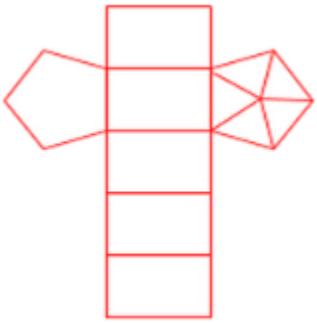


Find the surface area of a pentagonal prism by finding the area of a 2D net, Practice Set C Answer Key

1. Matthew is wrapping a birthday gift for his brother. He has 100 ft^2 of wrapping paper. Will that be enough?

No, it will not be enough because Matthew will need about 110 ft^2.



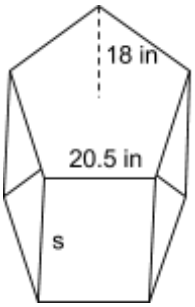


Area of rectangle = (5 ft)(3.25 ft)= 16.25 ft^2

Area of triangle = ½bh = ½(3.25 ft)(1.75 ft) = 2.84375 ft^2

Surface area = 5(16.25 ft^2) + 10(2.84375 ft^2) = 109.6875 ft^2

2. The regular pentagonal prism has a surface area of 3,485 in^2. Determine the value for s. s = 16 in



Surface area = 5(area of rectangle) + 10(area of pentagon)

3,485 in^2 = 5(20.5 in x s)+10(½ x 20.5 in x 18 in)

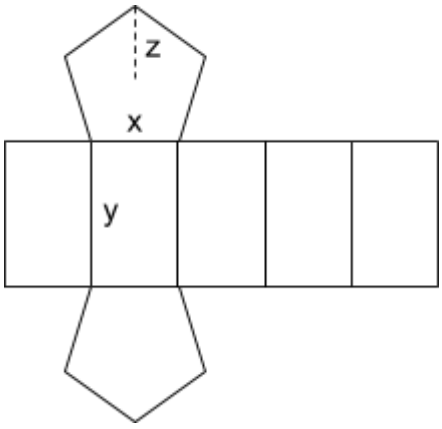
3,485 in^2 = 5(20.5 in x s)+1,845 in^2

1,640 in^2 = 5(20.5 in x s)

328 in^2 = 20.5 in x s

16 in = s

3. Determine the values of x, y and z that could be a regular pentagonal prism with a surface area between 2,000 in^2 and 3,000 in^2. Find three possibilities.



Answers will vary. Examples below:

Possibility 1	*Possibility 2*	*Possibility 3*
x = 18 in	*x = 17 in*	*x= 16 .5 in*
y= 16 in	*y = 22 in*	*y= 15.2 in*
z= 8 in	*z = 10 in*	*z = 12.75 in*
SA =2080 in^2	*SA =2970 in^2*	*SA = 2223 in^2*