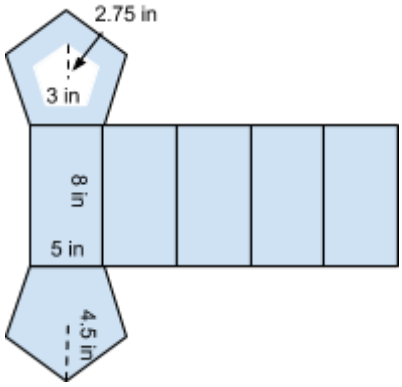
Find the surface area of a pentagonal prism by finding the area of a 2D net, Practice Set B

Name:

Date:

1. Tommy's Toys is making a regular pentagonal kaleidoscope. On one of the bases, they will put a piece of transparent plastic. Determine how much blue material is needed for the kaleidoscope.



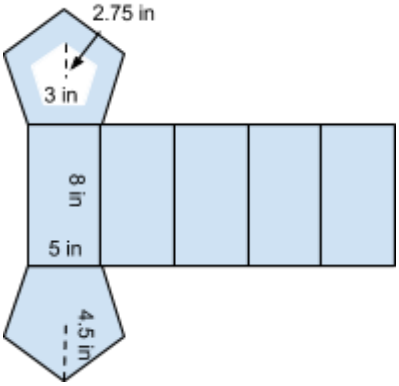
2. Emily is building a regular pentagonal deck in her backyard. She is calculating how much wood she will need.

a. Draw a net of the deck. One of the pentagonal faces will be on the ground and will not need to be covered with wood.

b. Emily wants the deck to be 1.75 m high and take up no more than 25 m^2 of land. Determine the measurements of the deck and calculate how many square meters of wood will be needed.

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

1. Tommy's Toys is making a regular pentagonal kaleidoscope. On one of the bases, they will put a piece of transparent plastic. Determine how much blue material is needed for the kaleidoscope.



Tommy's Toys will need 291.875 in^2 of blue material

Area of rectangle = (8 in)(5 in)= 40 in^2

Area of triangle = ½bh = ½(5 in)(4.5 in) = 11.25 in^2

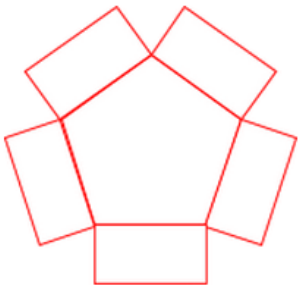
Surface area = 5(40 in^2) + 10(102.375 in^2) = 312.5 in^2

Area of white pentagon = 5(½)(3 in)(2.75 in) = 20.625 in^2

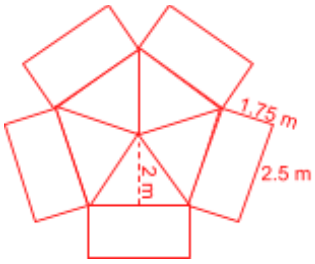
Total blue material = 312.5 in^2 - 20.625 in^2 = 291.875 in^2

2. Emily is building a regular pentagonal deck in her backyard. She is calculating how much wood she will need.

a. Draw a net of the deck. One of the pentagonal faces will be on the ground and will not need to be covered with wood.



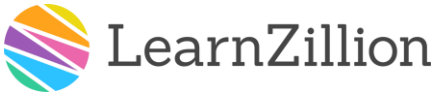
b. Emily wants the deck to be 1.75 m high and needs to take up no more than 25 m^2 space of land. Determine the measurements of the deck and calculate how much square meters will be needed. Answers will vary. Below is an example:



Area of rectangle = (1.75 m)(2.5 m)= 21.875 m^2

Area of triangle = ½bh = ½(2.5 m)(2 m) = 2.5 m^2

Surface area = 5(21.875 m^2) + 5(2.5 m^2) = 34.375 m^2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