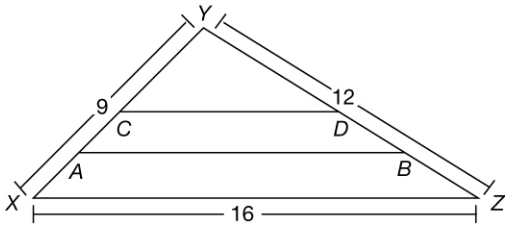
Name_____ Date_____ Class _____

Performance Task **11**

Shapes of Sheds

A storage shed can be built in any one of many shapes. The shed contents often determine the shape.

1. This diagram shows a cross section of a storage shed that is in the shape of a triangular prism.



   a. If $AB = 75\%$ of XZ and $CD = 50\%$ of XZ, how long are $\overline{AY}$ and $\overline{CY}$? Show your work.

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   b. What percent of AB is CD? Explain your reasoning.

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   c. What percent of the perimeter of ΔXYZ is that of ΔYCD? Justify your reasoning.

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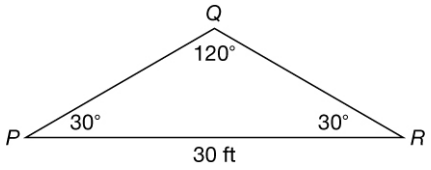
2. This diagram shows a cross section of another storage shed in the shape of a triangular prism.



   a. In simplest radical form and to the nearest tenth of a foot, how tall is the shed? Show your work.

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   b. The roof, shown in the cross section by $\overline{PQ}$ and $\overline{QR}$, will be given a coating of light reflective material. How long are $\overline{PQ}$ and $\overline{QR}$? Show your work.

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   c. What is the area of ΔPQR? Show your work.

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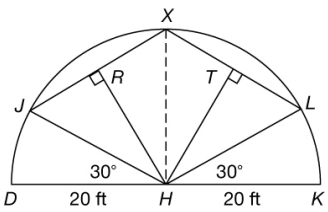
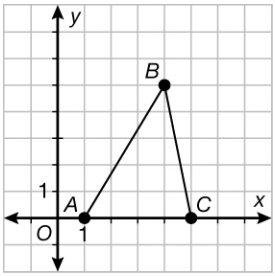
3. This diagram shows the cross section of a semi-circular storage shed.



   a. In simplest radical form and to the nearest tenth of a foot, find *RH*. Show your work.

   b. The roof of the shed is the arc shown from *D* through *J* and *L* to *K*. How long is this arc?

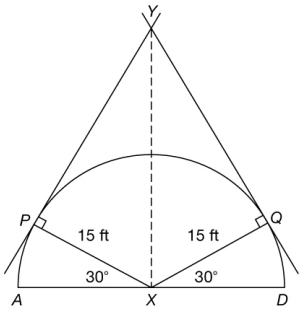
4. This diagram shows a cross section of a storage shed in the shape of a triangular prism. In the diagram, one unit corresponds to 4 feet in actual length.



   a. Find the area of $\triangle ABC$. Show your work.

   b. This diagram shows the front face of the storage shed. The storage shed is 40 feet long from front to back. Find the volume of the shed. Show your work.

5. This diagram shows the cross section of a storage shed. $\overleftrightarrow{PY}$ and $\overleftrightarrow{QY}$ are tangent to the semicircle at points *P* and *Q*, respectively.



   a. Find *XY.* Show your work.

   b. The roofline of the shed extends 50 ft from front face to back face. Find the combined area of the two rectangular roof sections. Show your work.