Problem Set A

1. a) If $EH = 7$ and $HG = 3$, find $HF$.
   b) If $EH = 7$ and $HG = 4$, find $EF$.
   c) If $GF = 6$ and $EG = 9$, find $HG$.

2. a) Find $2x$.
    b) Find $\frac{1}{2} y$.
    c) Find $z + 8$.

3. Given: $\overline{AC} \perp \overline{CB}$, $\overline{CD} \perp \overline{AB}$
   a) If $AD = 4$ and $BD = 9$, find $CD$.
   b) If $AD = 4$ and $AB = 16$, find $AC$.
   c) If $BD = 6$ and $AB = 8$, find $BC$.
   d) If $CD = 8$ and $BD = 16$, find $AD$.
   e) If $AD = 3$ and $BD = 24$, find $AC$.
   f) If $BC = 8$ and $BD = 20$, find $AB$.

4. Given: $\triangle JOM = 90^\circ$; $\overline{OK}$ is an altitude.
   a) If $JK = 12$ and $KM = 5$, find $OK$.
   b) If $OK = 3\sqrt{5}$ and $JK = 9$, find $KM$.
   c) If $JO = 3\sqrt{2}$ and $JK = 3$, find $JM$.
   d) If $KM = 5$ and $JK = 6$, find $OM$.

5. a) Find $a$.
    b) Find $ab$.
    c) Find $a + b + c$. 
6. Find the geometric mean of 9 and 24.

7. Solve for x and y.

![Diagram](image1)

8. Solve for x.

![Diagram](image2)

9. Find the values of the variables.

![Diagram](image3)

10. Steve is building a storage building. The roof of the storage building forms a right angle, and each side of the roof is 12 feet long. Find the width and height of the roof.