

Geometry Review Sections 5.3/5.4 Midsegments/Inequalities

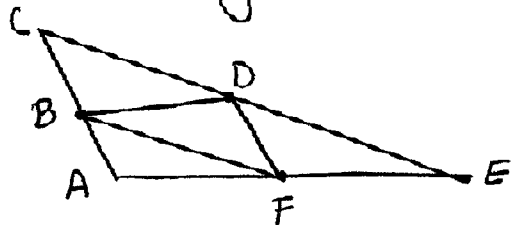


Diagram for #1-4.
B, D, F are midpoints

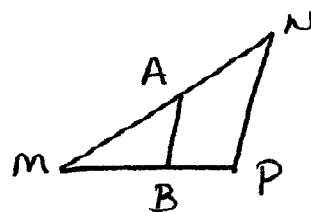
1) $BD = 6$, $AE = ?$ 2) $AB = 4$, $DF = ?$

3) $BF = x + 4$, $CD = 5x + 1$, $CE = ?$

4) $DF = 3(x + 2)$, $AC = 10x - 12$, $BC = ?$

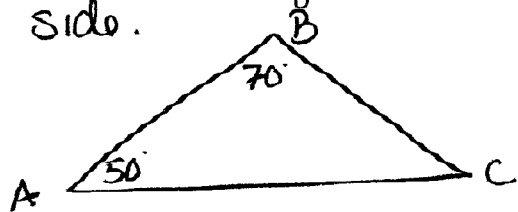
Verification. Include a conclusion for each part.

5) $G: M(-2, -2); N(-1, 4); P(2, 3)$
midsegment $\overline{AB}$
V: $\overline{AB}$ is midsegment

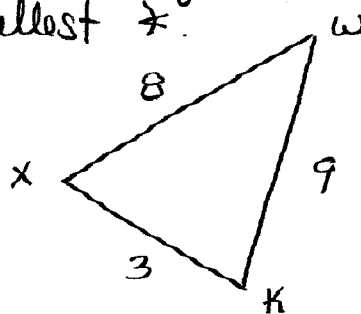


Inequalities

6) State the longest & shortest side.



7) State the largest & smallest $\angle$.



8) Which Δ 's exist?

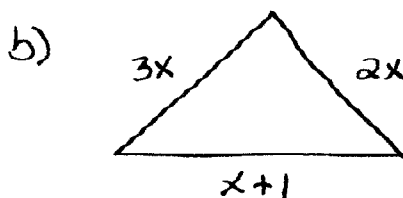
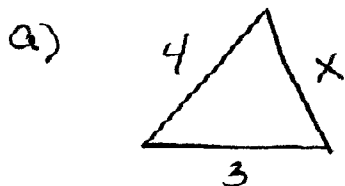
a) $\{3, 4, 5\}$

b) $\{11, 4, 15\}$

c) $\{8, 10, 13\}$

d) $\{13, 15, 17\}$

9) Find all possible values of x so that the Δ exists.



Answers:

1) $AE = 12$

2) $DF = 4$

3) $CE = \frac{19}{2}$

4) $BC = 24$

5) $m_{\overline{AB}} = m_{\overline{NP}} = -\frac{1}{3}$. Since m 's are the same, $\overline{AB} \parallel \overline{NP}$.

$$AB = \frac{\sqrt{10}}{2}, NP = \sqrt{10} \quad \text{so ... } AB = \frac{1}{2}(NP)$$
$$\frac{\sqrt{10}}{2} = \frac{1}{2}(\sqrt{10}) = \frac{\sqrt{10}}{2}$$

so $AB = \frac{1}{2}(NP)$

* see notes for complete format of a verification.

6) longest: $\overline{AC}$
shortest: $\overline{BC}$

7) largest x : $x \times$
smallest x : $x \wedge$

8) a) yes b) no c) no d) yes

9) a) $1 < x < 7$

10) $x > \frac{1}{4}$