

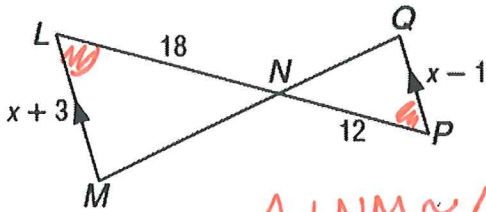
Name: _____

KEY

7.3 TRIANGLE SIMILARITY HOMEWORK

Identify the Similar triangles, how you know they are similar, find the variables and the measures of the indicated sides.

1. \overline{LM} and \overline{QP}



$\triangle LNM \sim \triangle PNQ$

$LM = 12$

$QP = 8$

$$\frac{LM}{QP} = \frac{LN}{NP}$$

$$\frac{x+3}{x-1} = \frac{18}{12}$$

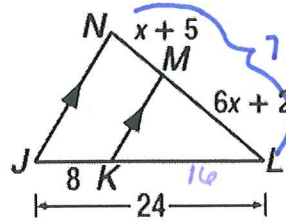
$$12(x+3) = 18(x-1)$$

$$12x + 36 = 18x - 18$$

$$54 = 6x$$

$$9 = x$$

2. \overline{NL} and \overline{ML} $\triangle LMK \sim \triangle LNJ$



A A Sim

$$\frac{LM}{LN} = \frac{LJ}{LN}$$

$$\frac{6x+2}{7x+7} = \frac{16}{24}$$

$$24(6x+2) = 16(7x+7)$$

$$144x + 48 = 112x + 112$$

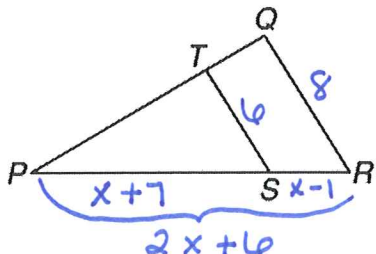
$$32x = 64$$

$$x = 2$$

$$NL = 21$$

$$ML = 14$$

3. If $\overline{TS} \parallel \overline{QR}$, $TS = 6$, $PS = x + 7$, $QR = 8$, and $SR = x - 1$, find PS and PR .



$$\frac{PR}{PS} = \frac{QR}{TS}$$

$$\frac{2x+6}{x+7} = \frac{8}{6}$$

$$6(2x+6) = 8(x+7)$$

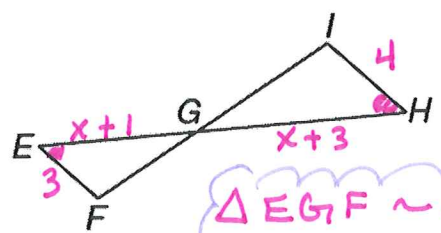
$$12x + 36 = 8x + 56$$

$$4x = 20$$

$$x = 5$$

$\triangle PQR \sim \triangle PTS$
 $PS = 12, PR = 16$

4. If $\overline{EF} \parallel \overline{HI}$, $EF = 3$, $EG = x + 1$, $HI = 4$, and $HG = x + 3$, find EG and HG .



$\triangle EGF \sim \triangle HGI$

$$\frac{EF}{HI} = \frac{EG}{GH}$$

$$\frac{3}{4} = \frac{x+1}{x+3}$$

$$3(x+3) = 4(x+1)$$

$$3x+9 = 4x+4$$

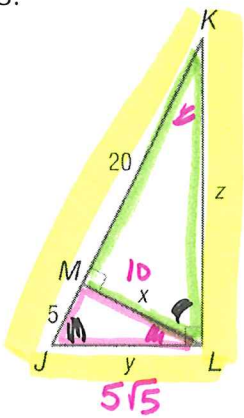
$$13 = x$$

$$EG = 14$$

$$HG = 16$$

Write out three similarity statements and find all variables.

5.



$$\frac{JL}{KJ} = \frac{MJ}{JL}$$

$$\frac{y}{25} = \frac{5}{y}$$

$$y^2 = 125$$

$$y = 5\sqrt{5}$$

$$\frac{ML}{MJ} = \frac{MK}{ML}$$

$$\frac{x}{5} = \frac{20}{x}$$

$$x^2 = 100$$

$$x = 10$$

$$\frac{KL}{MK} = \frac{KJ}{KL}$$

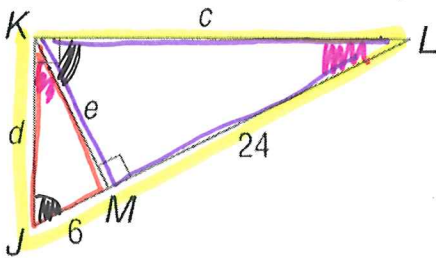
$$\frac{z}{20} = \frac{25}{z}$$

$$z^2 = 500$$

$$z = 10\sqrt{5}$$

$\triangle JML \sim \triangle LMK \sim \triangle JKL$

6.



$\triangle JMK \sim \triangle KML \sim \triangle JKL$

$$\frac{KL}{JK} = \frac{ML}{KL}$$

$$\frac{c}{30} = \frac{24}{c}$$

$$c^2 = 720$$

$$c = 12\sqrt{5}$$

$$\frac{KM}{JK} = \frac{ML}{KM}$$

$$\frac{e}{6} = \frac{24}{e}$$

$$e^2 = 144$$

$$e = 12$$

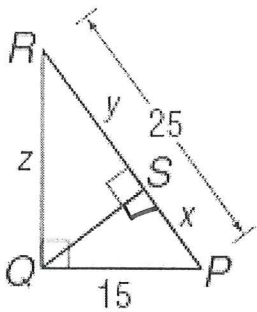
$$\frac{KJ}{JM} = \frac{JL}{KJ}$$

$$\frac{d}{6} = \frac{30}{d}$$

$$d^2 = 180$$

$$d = 3\sqrt{10}$$

7.



$\triangle PSQ \sim \triangle PQR \sim \triangle QSR$

$$\frac{QP}{SP} = \frac{RP}{QP}$$

$$\frac{15}{x} = \frac{25}{15}$$

$$x = 9$$

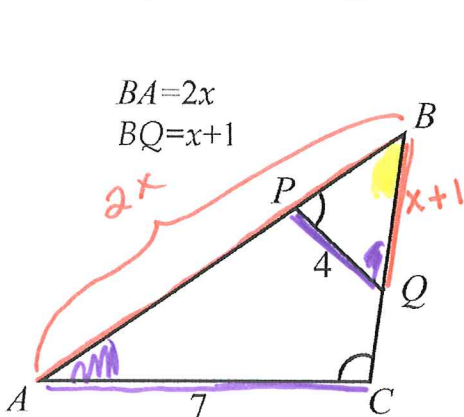
$$y = 16$$

$$\frac{z}{16} = \frac{25}{z}$$

$$z^2 = 400$$

$$z = 20$$

8. Identify the similar triangles and find x.



$$\frac{BQ}{AB} = \frac{PQ}{AC}$$

$$\frac{x+1}{2x} = \frac{4}{7}$$

$$7x+7 = 8x$$

$$7 = x$$

$\triangle ABC \sim \triangle QBP$

$$x = 7$$