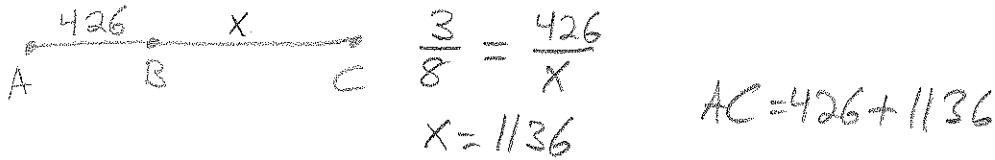


Advanced Geometry Review 6.1-6.3

Key

1) In the diagram AB:BC is 3:8, what is AC?



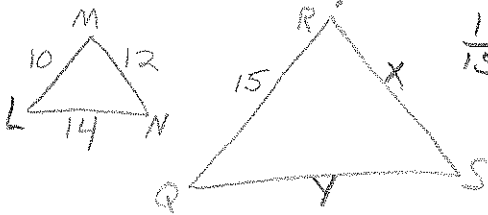
① 1562

2) The Flatiron Building in NY city is 285 Feet high and 190 Feet wide. A scale model of the building is 60 inches high, How wide is the model?

$$\frac{285}{5} = \frac{190}{x}$$

② 3' 4" = 40"

3) $\triangle LMN \sim \triangle QRS$, what is the perimeter of $\triangle QRS$?



$$\frac{10}{15} = \frac{12}{x}$$

$$x = 18$$

$$\frac{10}{15} = \frac{14}{y}$$

$$y = 21$$

③ 54

4) When we went to San Felipe, Baja, we exchanged \$50 US. dollars. We spent 200 pesos. How much US. dollars did we have left? \$1 = 9.5 pesos

$$\begin{array}{r} \$50 = 475 \text{ pesos} \\ - 200 \text{ pesos} \\ \hline 275 \text{ pesos} \rightarrow \$28.95 \end{array}$$

④ \$28.95

5) $\triangle ABC \sim \triangle DEF$, The scale factor of $\triangle ABC$ to $\triangle DEF$ is 2:3, If $FD = 61$ what is CA ? $\frac{2}{3} = \frac{x}{61}$

⑤ 40.66

6) Find the geometric mean between the two numbers.

a) 9 and 12

$$\sqrt{108} = \sqrt{9 \cdot 4 \cdot 3}$$

$$= 6\sqrt{3}$$

b) 17 and 32

$$\sqrt{544} = 4\sqrt{34}$$

c) 12 and 48

$$\sqrt{12 \cdot 48} = \sqrt{4 \cdot 3 \cdot 16 \cdot 3}$$

$$= \sqrt{4 \cdot 16 \cdot 9} = 2 \cdot 4 \cdot 3 = 24$$

7) Simplify the ratio

a) 12 second : 2 years

$$\frac{2 \text{ yrs} \mid 365 \text{ days} \mid 24 \text{ hrs} \mid 60 \text{ min} \mid 60 \text{ sec}}{1 \text{ yr} \mid 1 \text{ day} \mid 1 \text{ hr} \mid 1 \text{ min}} = \frac{12 \text{ sec}}{63072000} = \frac{1}{5256000}$$

b) 100 yards : 15 inches

$$\frac{3600}{15} = \frac{240}{1}$$

8) Solve the proportions.

a) $\frac{2z}{27} = \frac{3z+9}{81}$

$162z = 81z + 243$

$81z = 243$

$z = 3$

b) $\frac{97}{21} = \frac{b+2}{b+7}$

$97b + 679 = 21b + 42$

$76b = -637$

$b = \frac{-637}{76}$

c) $\frac{4x}{6x+4} = \frac{x}{25}$

$100x = 6x^2 + 4x$

$0 = 6x^2 - 96x$

$0 = 6x(x-13)$

$6x=0 \quad x-13=0$
 $x=0 \quad x=13$

d) $\frac{x+7}{2x+1} = \frac{18x}{11x-2}$

$11x^2 + 75x - 14 = 36x^2 + 18x$

$0 = 25x^2 - 57x + 14$

$0 = (25x - 7)(x - 2)$

$25x - 7 = 0 \quad x - 2 = 0$

$x = \frac{7}{25} \quad x = 2$

e) $\frac{y-1}{x+1} = \frac{3x}{2} = \frac{5x+1}{4x}$

$12x^2 = 10x + 2$

$12x^2 - 10x - 2 = 0$

$2(6x^2 - 5x - 1) = 0$

$2(6x+1)(x-1) = 0$

$6x+1=0 \quad x-1=0$

$x = -\frac{1}{6} \quad x = 1$

IF $x=1$

$\frac{y-1}{2} = \frac{3}{2}$

$y-1=3$

$y=4$

IF $x = -\frac{1}{6}$ then

$\frac{y-1}{\frac{5}{6}} = \frac{-\frac{1}{2}}{2}$

$\frac{6y-6}{5} = -\frac{1}{4}$

$6y-6 = -\frac{5}{4}$

$6y = -\frac{5}{4} + \frac{24}{4}$

$6y = \frac{19}{4} \Rightarrow y = \frac{19}{24}$

9) $\frac{AB}{CD} = \frac{AG}{FE}$ and $\frac{AB}{AC} = \frac{AG}{AF}$

Find AB and GF

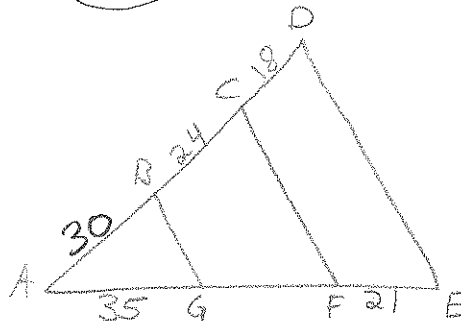
$\frac{AB}{18} = \frac{35}{21}$

$AB = 30$

$\frac{30}{54} = \frac{35}{AF}$

$AF = 63$

$GF = 28$



10) True or False.

a) IF $\frac{x}{y} = \frac{8}{3}$ then $\frac{y}{x} = \frac{3}{8}$

T

b) IF $\frac{x}{y} = \frac{8}{3}$ then $\frac{x}{8} = \frac{y}{3}$

T

c) IF $\frac{14}{y} = \frac{8}{3}$ then $\frac{28}{x+2y} = \frac{14}{3}$

T

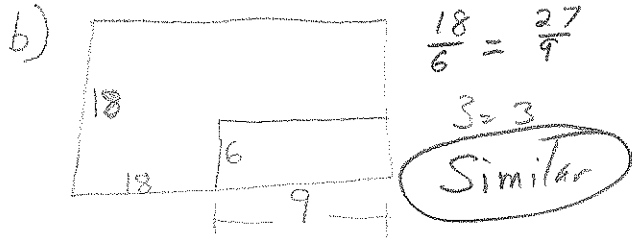
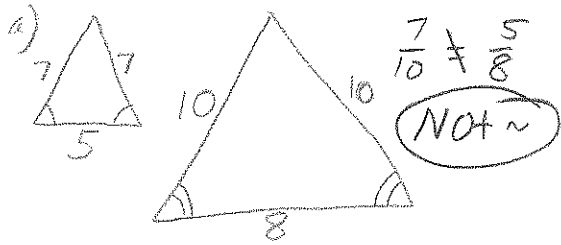
11) The distance between two points on a map is 2.3cm. The scale of the map is 1:24,000. How many meters is the distance between the two points in real life?

$\frac{1}{24000} = \frac{2.3}{x}$

$x = 55200 \text{ cm}$

$= 552 \text{ m}$

12) Determine whether the Polygons are Similar.



13) $\triangle ABC \sim \triangle DEF$. Find the missing measures.

$AC = 6, DF = 11, DG = 13, CI = 5$

$AH = \frac{78}{11}$

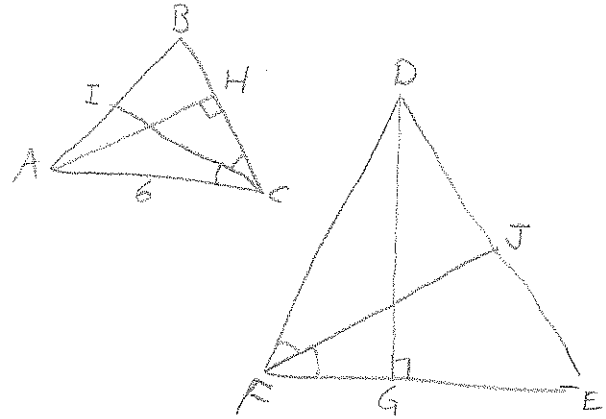
$\frac{AC}{DF} = \frac{6}{11}, \frac{6}{11} = \frac{AH}{13}$

$\frac{78}{11} = AH$

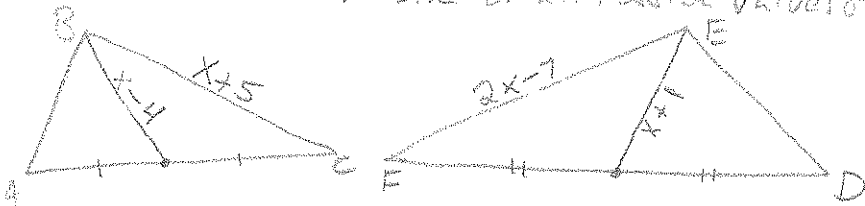
$JF = \frac{55}{6}$

$\frac{6}{11} = \frac{5}{JF}$

$JF = \frac{55}{6}$



14) $\triangle ABC \sim \triangle DEF$. Solve for all possible values of X.



$\frac{x+5}{2x-7} = \frac{x-4}{x+1}$

$x^2 + 6x + 5 = 2x^2 - 15x + 28$

$0 = x^2 - 21x + 23$

$x = \frac{21 \pm \sqrt{(21)^2 - 4(1)(23)}}{2} = \frac{21 \pm \sqrt{349}}{2}$

15) $\triangle ABC \sim \triangle DEF$, $\triangle ABC$ is isosceles, $\triangle ABC$ has a perimeter of 18" and a leg of length 5", and the base of $\triangle DEF$ is 34.4" long. What is the perimeter of $\triangle DEF$?



$\frac{8}{34.4} = \frac{18}{X}$

$P_{\triangle DEF} = 77.4"$