SIMILARITY TEST STUDY GUIDE

1. Of the 300 television sets sold at an electronics store last month, 90 were flat screen TVs. Find the ratio of flat-screen TVs to other TVs sold last month.

$300 - 90 = 210$

$\frac{90}{210} = \frac{3}{7}$

2. The blue print for a swimming pool is 8 inches by 2.5 inches. The actual pool is 136 feet long. Find the width of the pool.

$\frac{2.5}{8} = \frac{X}{136}$ $8X = 340$

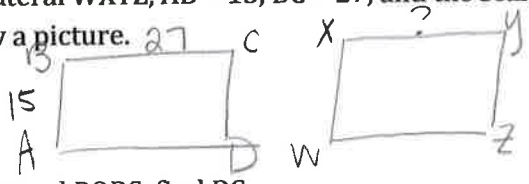
$X = 42.5$

42.5 ft wide

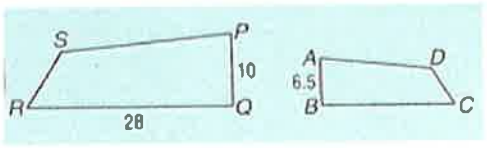
3. If quadrilateral ABCD ~ quadrilateral WXYZ, AB = 15, BC = 27, and the scale factor of WXYZ to ABCD is 2/3, find XY. Hint: Draw a picture.

$\frac{2}{3} = \frac{X}{27}$

$3X = 54$ $X = 18$



4. If quadrilateral ABCD ~ quadrilateral PQRS, find BC.

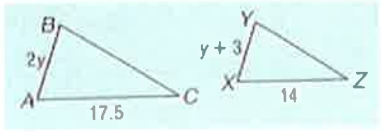


$\frac{6.5}{10} = \frac{x}{28}$

$10x = 182$

$x = 18.2$

5. If $\Delta ABC \sim \Delta XYZ$, find y.



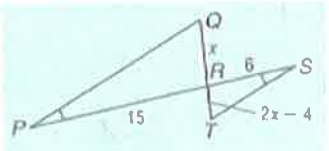
$\frac{2y}{y+3} = \frac{17.5}{14}$

$28y = 17.5y + 52.5$

$10.5y = 52.5$

$y = 5$

6. Identify the similar figures by writing a similarity statement. Then, find x.



$PQR \sim STR$

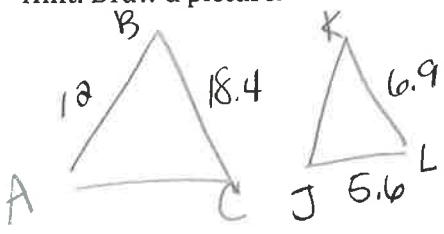
$\frac{x}{2x-4} = \frac{15}{6}$

$30x - 60 = 6x$

$-60 = -24x$

$x = 2.5$

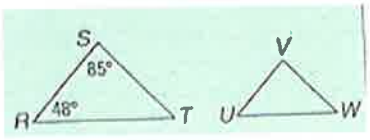
7. $\Delta ABC \sim \Delta JKL$, AB = 12, BC = 18.4, KL = 6.9, and JL = 5.6. Find the scale factor of ΔABC to ΔJKL. Hint: Draw a picture.



$\frac{18.4}{6.9} = \frac{8}{3}$ = scale factor

SIMILARITY TEST STUDY GUIDE

8. If $\Delta RST \sim \Delta UVW$, find $m\angle W$.



$85 + 48 = 133$

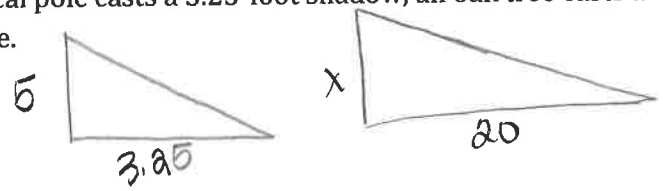
$180 - 133 = 47 = m\angle T$

$m\angle T = m\angle W$

$m\angle W = 47°$

9. When a 5-foot vertical pole casts a 3.25-foot shadow, an oak tree casts a 20-foot shadow. Find the height of the tree.

30.77 ft tall

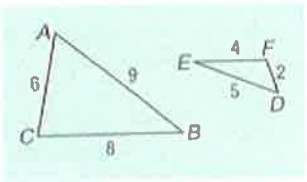


$\frac{5}{x} = \frac{3.25}{20}$

$3.25x = 100$

$x = 30.77$

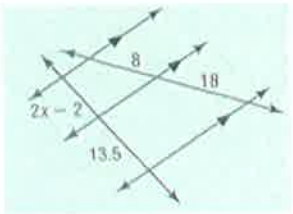
10. Determine whether $\Delta ABC \sim \Delta DEF$. Justify your answer.



$\frac{9}{5}$ $\frac{8}{4} = 2$ $\frac{6}{2} = 3$

no, sides not proportional

11. Find x.



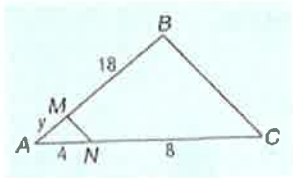
$\frac{2x-2}{13.5} = \frac{8}{18}$

$36x - 36 = 108$

$36x = 144$

$x = 4$

12. Find y.



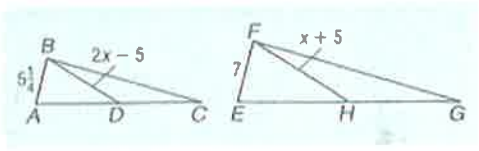
$\frac{y}{y+18} = \frac{4}{12}$

$12y = 4y + 72$

$8y = 72$

$y = 9$

13. If $\Delta ABC \sim \Delta EFG$, find BD. Is BD an altitude, angle bisector, or a median?



$BD = 2(7) - 5$

$BD = 9$

median

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

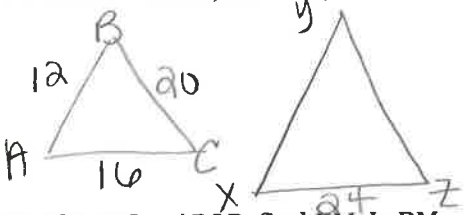
$14x - 35 = 5.25x + 26.25$

$8.75x = 61.25$

$x = 7$

SIMILARITY TEST STUDY GUIDE

14. $\Delta ABC \sim \Delta XYZ$, AB = 12, AC = 16, BC = 20, and XZ = 24. Find the scale factor of ΔABC to ΔXYZ.

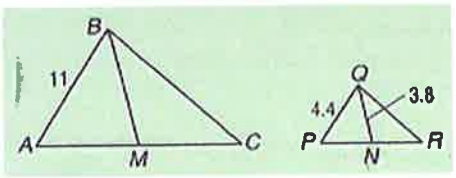


$\frac{16}{24} = \frac{2}{3}$

$\frac{2}{3}$ = scale factor

15. If $\Delta ABC \sim \Delta PQR$, find BM. Is BM an altitude, angle bisector, or a median?

median



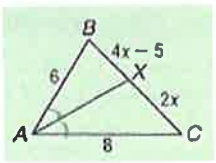
$\frac{11}{4.4} = \frac{x}{3.8}$

$41.8 = 4.4x$

$x = 9.5$

16. In ΔABC, AX bisects $m\angle BAC$. Find x. Is AX an altitude, angle bisector, or a median?

angle bisector



$\frac{6}{4x-5} = \frac{8}{2x}$

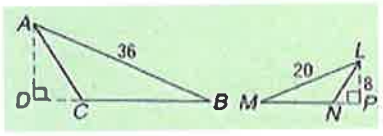
$12x = 32x - 40$

$-20x = -40$

$x = 2$

17. $\Delta ABC \sim \Delta LMN$. Find AD. Is AD an altitude, angle bisector, or a median?

altitude

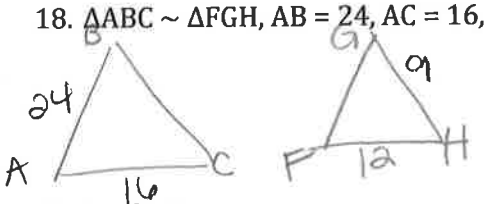


$\frac{8}{x} = \frac{20}{36}$

$20x = 288$

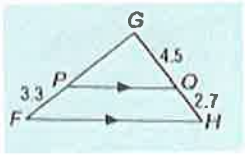
$x = 14.4 = AD$

18. $\Delta ABC \sim \Delta FGH$, AB = 24, AC = 16, GH = 9, and FH = 12. Find the scale factor of Δ~~LMN~~ FGH to ΔABC.



$\frac{12}{16} = \frac{3}{4}$ = scale factor

19. Find GP.



$\frac{x}{3.3} = \frac{4.5}{2.7}$

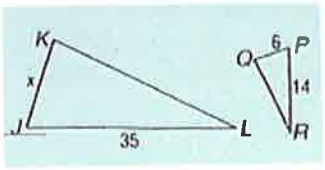
$2.7x = 14.85$

$x = 5.5$

$GP = 5.5$

SIMILARITY TEST STUDY GUIDE

20. If ΔJKL ~ ΔPQR, find x.

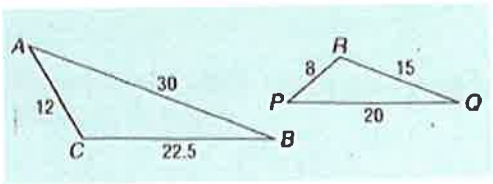


$\frac{x}{6} = \frac{14}{35}$

$35x = 84$

$x = 2.4$

21. Determine whether ΔABC ~ ΔPQR. Justify your answer.

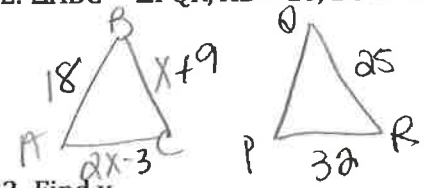


$\frac{30}{20} = \frac{3}{2}$ $\frac{22.5}{15} = \frac{3}{2}$

$\frac{12}{8} = \frac{3}{2}$

yes, SSS all sides proportional

22. ΔABC ~ ΔPQR, AB = 18, BC = x+9, AC = 2x-3, and QR = 25 and PR = 32. Find x.



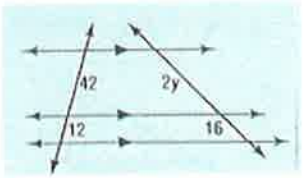
$\frac{2x-3}{32} = \frac{x+9}{25}$

$32x + 288 = 50x - 75$

$363 = 18x$

$x = 20.1\overline{6}$

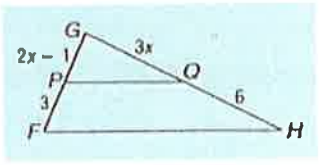
23. Find y.



$\frac{42}{12} = \frac{2y}{16}$ $24y = 672$

$y = 28$

24. Find x.



$\frac{2x-1}{3} = \frac{3x}{6}$

$9x = 12x - 6$

$-3x = -6$

$x = 2$