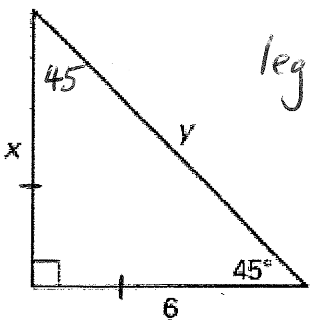
Geometry Fall 2015 Final Exam Review Packet

Unit 1: Right Triangles, Simplifying /Operations with Radicals

Key

1. Find the value of each variable. Write answers in simplest radical form.

a.



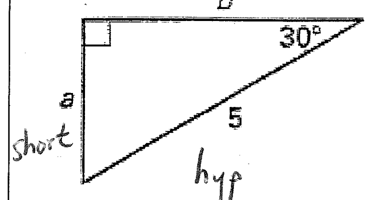
45-45-90

$$leg = leg \xrightarrow{\times\sqrt{2}} hyp, \quad hyp \xrightarrow{\div\sqrt{2}} leg$$

$$\boxed{\begin{aligned} x &= 6 \\ y &= 6\sqrt{2} \end{aligned}}$$

b.

long



30-60-90

$$long \xrightarrow{\div\sqrt{3}} short \xrightarrow{\times 2} hyp$$

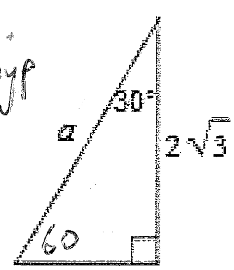
$$hyp \xrightarrow{\div 2} short \xrightarrow{\times\sqrt{3}} long$$

$$\boxed{a = \frac{5}{2}} \qquad b = \frac{5}{2}\sqrt{3} = \frac{5\sqrt{3}}{2}$$

$$\boxed{b = \frac{5\sqrt{3}}{2}}$$

2. Find a and b

hyp



long

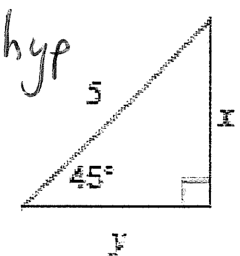
$$b = \frac{2\sqrt{3}}{\sqrt{3}} = 2$$

$$a = 2(2) = 4$$

$$\boxed{\begin{aligned} b &= 2 \\ a &= 4 \end{aligned}}$$

3. Find x and y

hyp



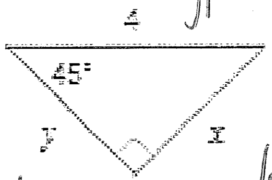
leg

leg

$$x = \frac{5}{\sqrt{2}} = \frac{5\sqrt{2}}{2}$$

$$\boxed{x = \frac{5\sqrt{2}}{2}}$$

4. **Find x and y**



hyp

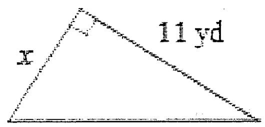
leg leg

$$x = \frac{4}{\sqrt{2}} = \frac{4\sqrt{2}}{2} = 2\sqrt{2}$$

$$\boxed{\begin{array}{l} x = 2\sqrt{2} \\ y = 2\sqrt{2} \end{array}}$$

5. **Find the missing side:**

a)



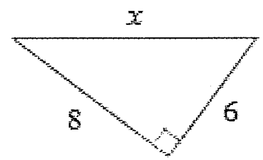
$x^2 + 11^2 = 13^2$

$x^2 + 121 = 169$

$x^2 = 48$

$x = \sqrt{48} = \boxed{4\sqrt{3}}$

b)

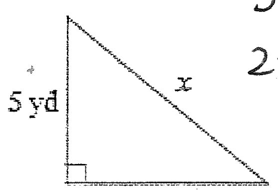


$6^2 + 8^2 = x^2$

$100 = x^2$

$\boxed{10 = x}$

c)



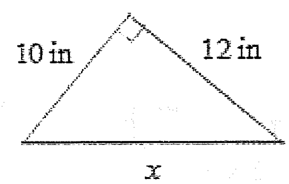
$5^2 + 6^2 = x^2$

$25 + 36 = x^2$

$61 = x^2$

$\boxed{x = \sqrt{61}}$

d)



$10^2 + 12^2 = x^2$

$244 = x^2$

$x = \sqrt{244}$

$\boxed{x = 2\sqrt{61}}$

6. $\sqrt{8xy^4} \cdot \sqrt{2x^2y^4}$

$\sqrt{16x^3y^8} = 4xy^4\sqrt{x}$

A) $4y^4\sqrt{x}$ B) $\boxed{4xy^4\sqrt{x}}$ C) $4xy^8\sqrt{x}$ D) $2xy^4\sqrt{2x}$

7. $6\sqrt{32} - 6\sqrt{162}$

$6\sqrt{16 \cdot 2} - 6\sqrt{81 \cdot 2} = 24\sqrt{2} - 54\sqrt{2} = \boxed{-30\sqrt{2}}$

A) $\boxed{-30\sqrt{2}}$ B) $-78\sqrt{2}$ C) $78\sqrt{2}$ D) $30\sqrt{2}$

8. $\sqrt{14x} \cdot \sqrt{14x}$

$(\sqrt{14x})^2 = \boxed{14x}$

A) $14x^2$ B) $196x$ C) $\boxed{14x}$ D) $196x^2$

9. $\dfrac{\sqrt{441x^7}}{\sqrt{7x^5}}$

$\sqrt{63x^2} = \sqrt{9 \cdot 7x^2} = \boxed{3x\sqrt{7}}$

A) $3x^6\sqrt{7}$ B) $\boxed{3x\sqrt{7}}$ C) $x\sqrt{63}$ D) $3x\sqrt{49}$

Solve by Factoring #10-15

$-2 \times 21 = -42$ $\quad -2 + 21 = 19$

10) $7x^2 = 6 - 19x$

$7x^2 + 19x - 6 = 0$

$7x^2 - 2x + 21x - 6 = 0$

$x(7x-2) + 3(7x-2) = 0$

$(7x-2)(x+3)$

$x = 2/7 \quad x = -3$

11) $15x^2 = 65x - 20$

$-1 \times -12 = 12$ $\quad -1 + -12 = -13$

$15x^2 - 65x + 20 = 0$

$5(3x^2 - 13x + 4)$

$3x^2 - 1x - 12x + 4$

$x(3x-1) - 4(3x-1)$

$5(x-4)(3x-1)$

$x = 4, 1/3$

12) $8x^2 = 18$

$8x^2 - 18 = 0$

$2(4x^2 - 9) = 0$

$6 \times -6 = -36$ $\quad 6 + -6 = 0$

$4x^2 + 0x - 9 = 0$

$4x^2 + 6x - 6x - 9 = 0$

$2x(2x+3) - 3(2x+3)$

$2(2x+3)(2x-3)$

$x = -3/2, 3/2$

13) $12x^2 = 30x$

$12x^2 - 30x = 0$

$6x(2x-5)$

$x = 0, x = 5/2$

14) $12x^2 - 10 = -26x$

10, 3
15, 2

$15 \times -2 = -30$ $\quad 15 + -2 = 13$

$12x^2 + 26x - 10 = 0$

$2(6x^2 + 13x - 5) = 0$

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

$3x(2x+5) - 1(2x+5)$

$(2x+5)(3x-1)$

$x = -5/2 \quad x = 1/3$

15) $9x^2 - 9 = 72$

$9x^2 - 81 = 0$

$9x^2 - 9 - 72 = 0$

$9(x^2 - 9) = 0$

$3 \times -3 = -9$ $\quad 3 + -3 = 0$

$9(x^2 + 0x - 9) = 0$

$x^2 + 3x - 3x - 9$

$x(x+3) - 3(x+3)$

$(x+3)(x-3)$

$x = -3, x = 3$

For #16–19, solve by completing the square

16) $6x^2 = 10x + 2x + 63 + 3$

$\frac{6x^2}{6} - \frac{12x}{6} - \frac{66}{6} = \frac{0}{6}$

$\left(\frac{b}{2}\right)^2 = \left(\frac{2}{2}\right)^2 = 1$

$x^2 - 2x - 11 = 0$

$x^2 - 2x + \underline{1} = 11 + \underline{1}$

$(x-1)^2 = 12$

$\sqrt{(x-1)^2} = \pm\sqrt{12}$

$x - 1 = \pm\sqrt{12}$

$\boxed{x = 1 \pm \sqrt{12} \text{ or } x = 1 \pm 2\sqrt{3}}$

17) $6x^2 - 12x - 41 = 1$

$\frac{6x^2}{6} - \frac{12x}{6} - \frac{42}{6} = \frac{0}{6}$

$\left(\frac{b}{2}\right)^2 = \left(\frac{-2}{2}\right)^2 = 1$

$x^2 - 2x - 7 = 0$

$x^2 - 2x + \underline{1} = 7 + \underline{1}$

$(x-1)^2 = 8$

$\sqrt{(x-1)^2} = \pm\sqrt{8}$

$x - 1 = \pm\sqrt{8}$

$x - 1 = \pm\sqrt{8}$

$\boxed{x = 1 \pm \sqrt{8} \text{ or } x = 1 \pm 2\sqrt{2}}$

18) $x^2 - 13 = 12x - 1$

$\left(\frac{b}{2}\right)^2 = \left(\frac{12}{2}\right)^2 = 6^2 = 36$

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

$x^2 - 12x + \underline{36} = 12 + \underline{36}$

$(x - 6)^2 = 48$

$\sqrt{(x-6)^2} = \pm\sqrt{48}$

$x - 6 = \pm\sqrt{48}$

$\boxed{x = 6 \pm \sqrt{48} \text{ or } x = 6 \pm 4\sqrt{3}}$

19) $2x^2 = 16x + 26$

$\frac{2x^2}{2} - \frac{16x}{2} - \frac{26}{2} = \frac{0}{2}$

$\left(\frac{b}{2}\right)^2 = \left(\frac{-8}{2}\right)^2 = 4^2 = 16$

$x^2 - 8x - 13 = 0$

$x^2 - 8x + \underline{16} = 13 + \underline{16}$

$(x - 4)^2 = 29$

$\sqrt{(x-4)^2} = \pm\sqrt{29}$

$\boxed{x - 4 = \pm\sqrt{29}}$

Use quadratic equation and discriminant to solve: Quadratic Equation: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

20) Use quadratic formula to solve: $4x^2 = 1x - 6$

$4x^2 - 1x + 6 = 0$

$a = 4$, $b = -1$, $c = 6$

$D = 1^2 - (4 \cdot 4 \cdot 6) = -95$

$x = \frac{1 \pm \sqrt{-95}}{2(4)} = \boxed{\frac{1 \pm \sqrt{-95}}{8}}$

Discriminant -95

Nature of solution: No Real (2 imaginary solutions)

Solution(s) $\frac{1 \pm \sqrt{-95}}{8}$

21) Use quadratic formula to solve: $3x^2 + 1 - x = 5x + 9$

$a = 3$, $b = -6$, $c = -8$

$3x^2 - 6x - 8 = 0$

$D = 6^2 - (4 \cdot 3 \cdot -8) = 132$

$x = \frac{6 \pm \sqrt{132}}{2(3)} = \frac{6 \pm \sqrt{132}}{6}$

Discriminant 132

Nature of solution: 2 Real

Solution(s) $\frac{6 \pm \sqrt{132}}{6}$

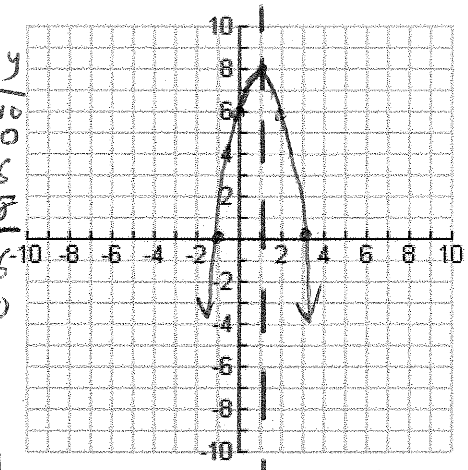
Graph each quadratic function. State the requested information.

22. Graph $y = -2(x + 1)(x - 3)$ Form: Intercept Opens: down

Vertex: (1, 8) a = -2 **Max** / Min (Circle one)

AOS: $x = 1$ x – intercept(s): (-1, 0), (3, 0) y – intercept: (0, 6)

x	y
-2	-10
-1	0
0	6
1	8
2	6
3	0



Domain: $(-\infty, \infty)$ Range: $(-\infty, 8]$

Avg. Rate of Change [-2, 1]: 6

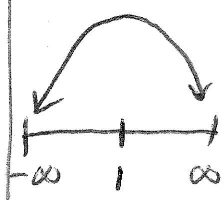
(-2, -10)
(1, 8)

$\frac{y_2-y_1}{x_2-x_1} = \frac{8--10}{1--2} = \frac{18}{3} = 6$

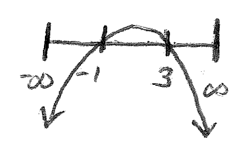
End Behavior:
As $x \to \infty$, $f(x) \to$ $-\infty$ Increasing: $(-\infty, 1)$ Positive: (-1, 3)

As $x \to -\infty$, $f(x) \to$ $-\infty$ Decreasing: $(1, \infty)$ Negative: $(-\infty, -1) \cup (3, \infty)$

Inc/Dec (vertex)



pos/neg (x-int)



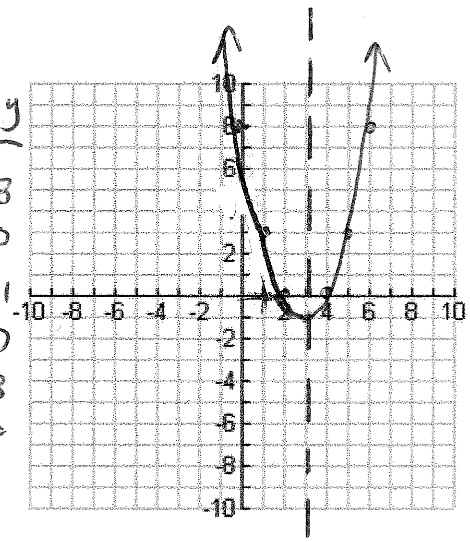
$\frac{-b}{2a} = \frac{6}{2} = 3$

23. Graph $y = x^2 - 6x + 8$ Form: Standard Opens: up

Vertex: (3, -1) a = 1 Max / **Min** (Circle one)

AOS: $x = 3$ x – intercept(s): (2, 0) (4, 0) y – intercept: (0, 8)

x	y
1	3
2	0
3	-1
4	0
5	3
6	8



Domain: $(-\infty, \infty)$ Range: $[-1, \infty)$

Avg. Rate of Change [3, 5]: 2

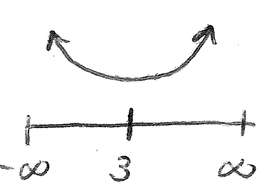
(3, -1)
(5, 3)

$\frac{y_2-y_1}{x_2-x_1} = \frac{3--1}{5-3} = \frac{4}{2} = 2$

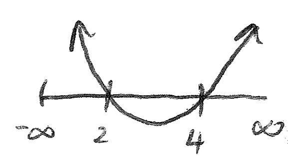
End Behavior:
As $x \to \infty$, $f(x) \to$ $+\infty$ Increasing: $(3, \infty)$ Positive: $(-\infty, 2)(4, \infty)$

As $x \to -\infty$, $f(x) \to$ $+\infty$ Decreasing: $(-\infty, 3)$ Negative: (2, 4)

Inc/Dec (vertex)



pos/neg (x-int)



24. Graph $y = -(x-2)^2 + 9$ Form: vertex Opens: down

Vertex: $(2,9)$ a = -1 Max / Min (Circle one)

AOS: $x=2$ x – intercept(s): $(-1,0)(5,0)$ y – intercept: $(0,5)$

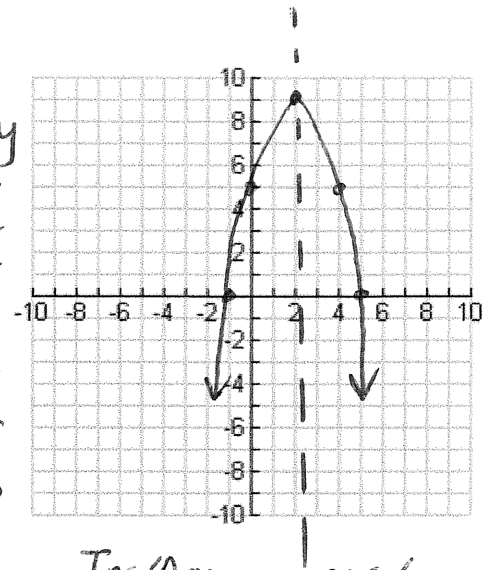
Domain: $(-\infty,\infty)$ Range: $(-\infty,9]$

Avg. Rate of Change [2, 5]: -3

$(2,9)$
$(5,0)$

$$\frac{y_2-y_1}{x_2-x_1} = \frac{0-9}{5-2} = \frac{-9}{3} = -3$$

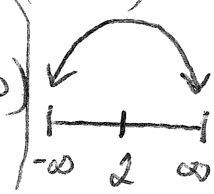
x	y
-1	0
0	5
1	8
2	9
3	8
4	5
5	0



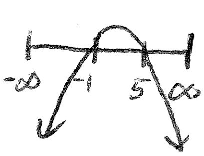
End Behavior:
As $x \to \infty$, $f(x) \to$ $-\infty$ Increasing: $(-\infty,2)$ Positive: $(-1,5)$

As $x \to -\infty$, $f(x) \to$ $-\infty$ Decreasing: $(2,\infty)$ Negative: $(-\infty,-1) \cup (5,\infty)$

Inc/Dec (vertex)



pos./neg. (x-int)



25. Identify the vertex of $g(x) = (x+14)^2 - 8$.

a. $(-14, -8)$ c. $(14, -8)$
b. $(-14, 8)$ d. $(14, 8)$

$V(-14,-8)$

26. Write the quadratic function $c(x) = x^2 - 8x - 17$ in vertex form.

a. $c(x) = (x-4)^2 - 1$ c. $c(x) = (x-6)^2 - 5$
$\boxed{\text{b.}}$ $c(x) = (x-4)^2 - 33$ d. $c(x) = (x-6)^2 - 19$

$\left(\frac{b}{2}\right)^2 = \left(\frac{8}{2}\right)^2 = 16$

$x^2 - 8x + \underline{16} - 17 - \underline{16}$

$(x-4)^2 - 33$

27. Consider $h(x) = x^2 - 6x + 11$. What are its vertex and y-intercept?

a. vertex: $(-3, 38)$, y-intercept: $(0, 11)$ c. vertex: $(-3, -2)$, y-intercept: $(0, 11)$
$\boxed{\text{b.}}$ vertex: $(3, 2)$, y-intercept: $(0, 11)$ d. vertex: $(0, 11)$, y-intercept: $(3, 2)$

vertex $= \frac{-b}{2a} = \frac{-(-6)}{2(1)} = \boxed{(3,2)}$ y-int: (set $x=0$, solve for y)
$y = 0^2 - 6(0) + 11 = 11$ $\boxed{\text{y-int: } (0,11)}$

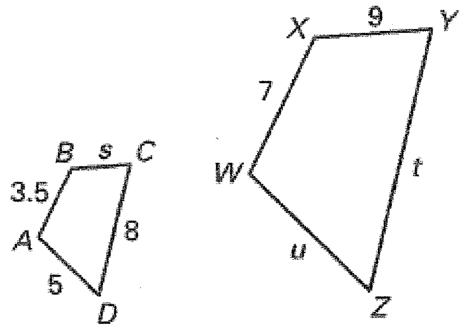
28. Find the vertex of the quadratic function $f(x) = 2(x-3)(x+1)$

a) (3, -1) b) (-3,-1) $\boxed{\text{c) (1, -8)}}$ d) (-1, 0)

$y = a(x-p)(x-q)$ $p=3, q=-1$
$y = 2(x-3)(x+1)$

$\frac{p+q}{2} = \frac{3-1}{2} = \frac{2}{2} = 1$

$\boxed{V(1,-8)}$



original new

29. Given: ABCD ~ $WXYZ$

a. Find the ratio of polygon ABCD to WXYZ $\frac{3.5}{7} = \boxed{\frac{1}{2}}$

b. Find the scale factor of polygon ABCD to WXYZ $\frac{7}{3.5} = \boxed{\frac{2}{1}}$

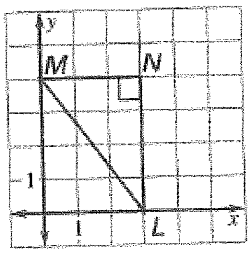
c. Find the value of t

$\frac{3.5}{7} = \frac{8}{t}$ $\quad \frac{3.5t}{3.5} = \frac{56}{3.5}$ $\quad \boxed{t = 16}$

Use the origin as the center of the dilation and the given scale factor to find the coordinates of the vertices of the image of the polygon.

30. $k = 2$

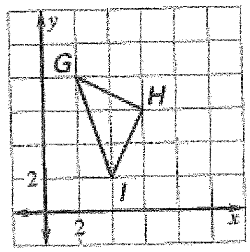
M(0,4)
N(3,4)
L(3,0)



M′(0,8)
N′(6,8)
L′(6,0)

31. $k = \frac{1}{2}$

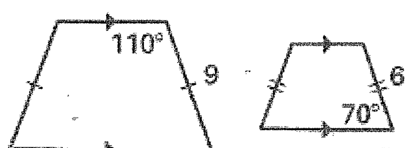
G(2,8)
H(6,6)
I(4,2)



G′(1,4)
H′(3,3)
I′(2,1)

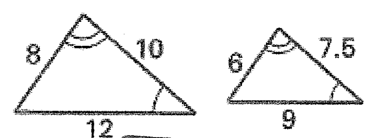
The two polygons are similar. Find the scale factor. (8.3)

32.



$\frac{6}{9} = \boxed{\frac{2}{3}}$

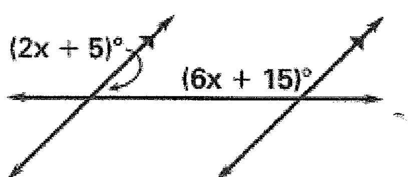
33.



$\frac{7.5}{10} = \boxed{\frac{3}{4}}$

Find the value of x

34.



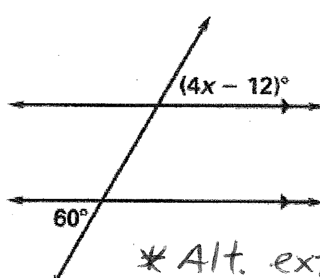
* consecutive interior angles are supplementary

$2x + 5 + 6x + 15 = 180$

$8x + 20 = 180$

$8x = 160$ $\quad \boxed{x = 20}$

35.

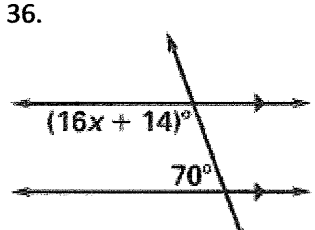


* Alt. exterior angles are congruent

$4x - 12 = 60$

$4x = 72$ $\quad \boxed{x = 18}$

36.



* Consecutive interior angles supplementary

$16x + 14 + 70 = 180$

$16x + 84 = 180$

$16x = 96$ $\quad \boxed{x = 6}$

37. Solve each proportion:

a. $\frac{10}{3} = \frac{7}{x}$

$10x = 21$

$x = \frac{21}{10} = \boxed{2.1}$

b. $\frac{z-1}{3} = \frac{8}{z+1}$

$(z-1)(z+1) = 24$

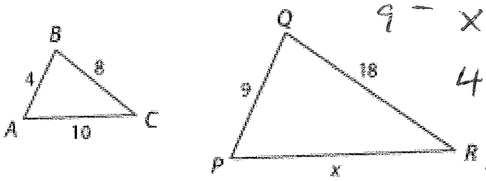
$z^2 - 1 = 24$

$z^2 = 25$

$z = \pm\sqrt{25}$ $\boxed{z = 5, -5}$

38. Each pair of polygons is similar. Find the value of x:

a.

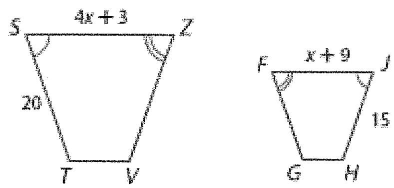


$\frac{4}{9} = \frac{10}{x}$

$4x = 90$

$\boxed{x = 22.5}$

b.



$\frac{15}{20} = \frac{x+9}{4x+3}$

$15(4x+3) = 20(x+9)$

$60x + 45 = 20x + 180$

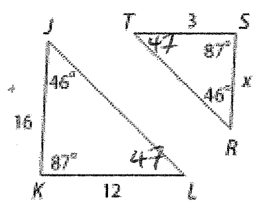
$40x = 135$

$\boxed{x = 3.375}$

39. Find each measure

a.

SR



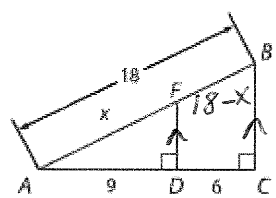
$\frac{3}{12} = \frac{x}{16}$

$12x = 48$

$\boxed{x = 4}$

b.

AF



$\frac{6}{9} = \frac{18-x}{x}$

$6x = 9(18-x)$

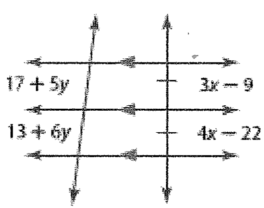
$6x = 162 - 9x$

$15x = 162$

$\boxed{x = 10.8}$

40. Find x and y

a.



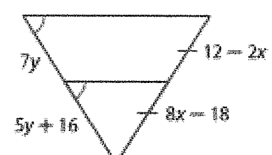
$3x - 9 = 4x - 22$

$\boxed{13 = x}$

$17 + 5y = 13 + 6y$

$\boxed{4 = y}$

b.



$8x - 18 = 12 - 2x$

$10x = 30$

$\boxed{x = 3}$

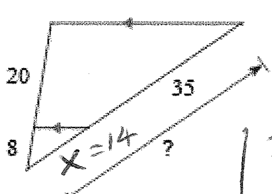
$7y = 5y + 16$

$2y = 16$

$\boxed{y = 8}$

41. Find the missing length:

a.



$\frac{8}{20} = \frac{x}{35}$

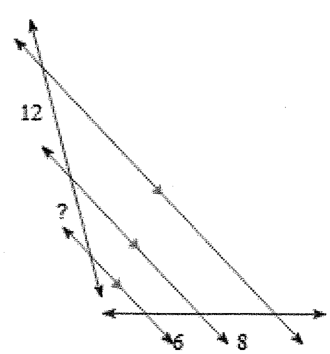
$20x = 280$

$x = 14$

length $= 14 + 35$

$= \boxed{49}$

b.



$\frac{6}{8} = \frac{x}{12}$

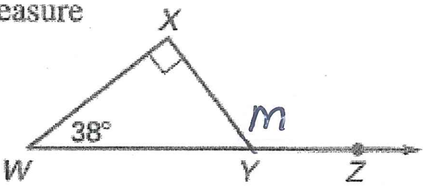
$8x = 72$

$\boxed{x = 9}$

Unit 4: Congruent Triangles: Classify Triangles, Interior, Exterior Angles, Congruence Theorems (SSS, SAS, HL, ASA, AAS), Congruence Proofs, Isosceles Triangles, Equilateral Triangles.

42.

What is the measure of $\angle XYZ$?



Ⓐ 142°
Ⓑ 128°
Ⓒ 118°
Ⓓ 132°
Ⓔ Cannot be determined

$m = 38 + 90$

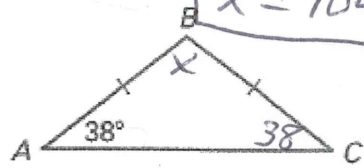
$m = 128$

43.

$x + 38 + 38 = 180$

$\boxed{x = 104}$

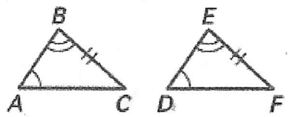
What is the measure of $\angle B$?



Ⓐ 90°
Ⓑ 38°
Ⓒ 104°
Ⓓ 52°
Ⓔ Cannot be determined

State the theorem used to prove the triangles are congruent.
(4.4, 4.6)

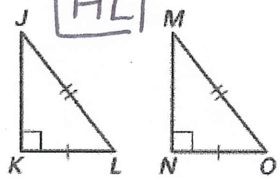
44.



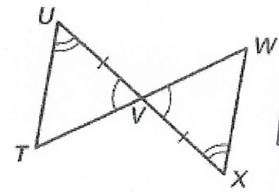
$\boxed{AAS}$

45.

$\boxed{HL}$

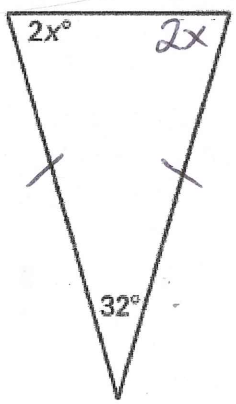


46.



$\boxed{ASA}$

47. In the isosceles triangle below, find the value of x



$2x + 2x + 32 = 180$

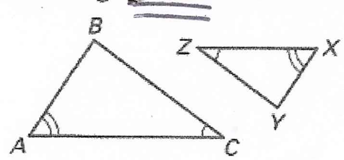
$4x + 32 = 180$

$4x = 148$

$\boxed{x = 37}$

48.

The triangles shown are similar. Which of the following is *not* a correct statement?



Ⓐ $\frac{AB}{XY} = \frac{BC}{YZ}$ ✓

Ⓑ $\triangle ABC \sim \triangle XYZ$ ✓

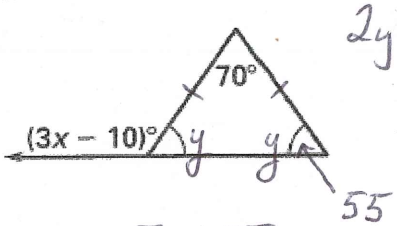
Ⓒ $\frac{BC}{YZ} = \frac{AC}{XY}$ X

Ⓓ $\frac{CA}{ZX} = \frac{BA}{YX}$ ✓

Ⓔ $\frac{AC}{XZ} = \frac{AB}{XY}$ ✓

49. Find x:

a.



$2y + 70 = 180$

$2y = 110$

$y = 55$

$3x - 10 = 70 + 55$

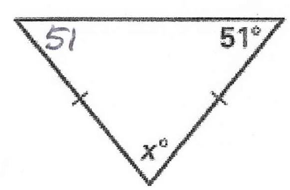
$3x = 135$

$\boxed{x = 45}$

b.

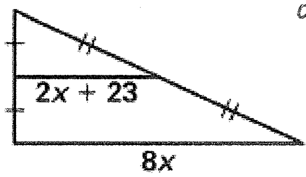
$x + 51 + 51 = 180$

$\boxed{x = 78}$



✻ 2(midsegment) = base

50. **Find length of the midsegment:**



$2(2x+23) = 8x$

$4x + 46 = 8x$

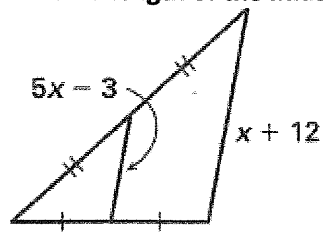
$46 = 4x$

$11.5 = x$

midsegment $= 2x + 23$

$= 2(11.5) + 23 = \boxed{46}$

51. **Find length of the midsegment:**



$2(5x-3) = x + 12$

$10x - 6 = x + 12$

$9x = 18$

$x = 2$

midsegment $= 5x - 3$

$= 5(2) - 3 = \boxed{7}$

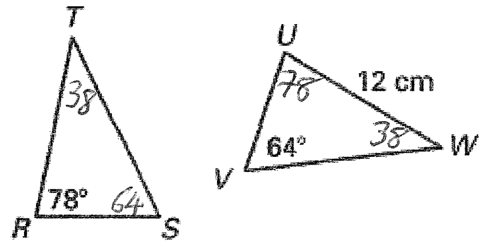
In the diagram, $\triangle RST \cong \triangle UVW$. Complete each statement. (4.2)

52. $m\angle S =$ ___?___ $\boxed{64°}$

53. $m\angle W =$ ___?___ $\boxed{38°}$

54. $\overline{RT} =$ ___?___

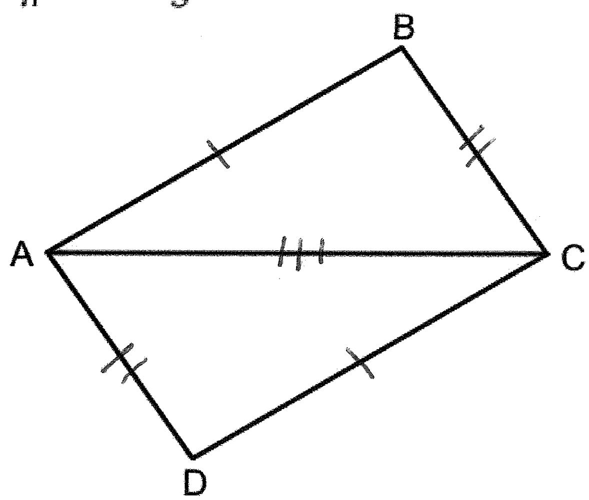
$RT = UW = \boxed{12 \text{ cm}}$



Part III: Write a formal proof.

55. Given: $\overline{AB} \cong \overline{CD}$
$\overline{AD} \cong \overline{BC}$

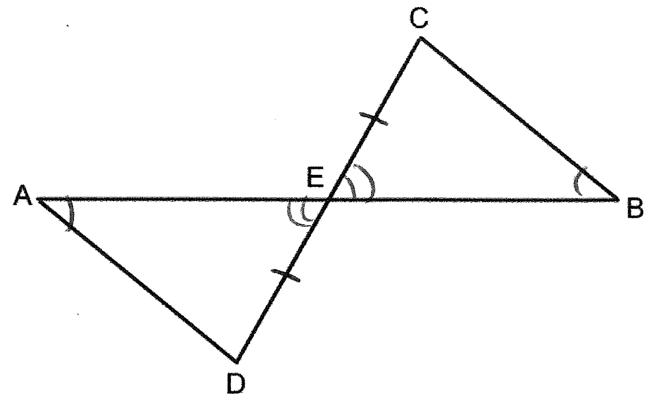
Prove: $\angle BCA \cong \angle DAC$



Statements	Reasons
1) AB = CD	1) Given
2) AD = BC	2) Given
3) AC = AC	3) Reflexive property of congruence
4) $\triangle ABC \cong \triangle CDA$	4) SSS
5) $\angle BCA \cong \angle DAC$	5) CPCTC

56.
Given: $\overline{AEB}$ bisects $\overline{DEC}$ at E
$\angle A \cong \angle B$

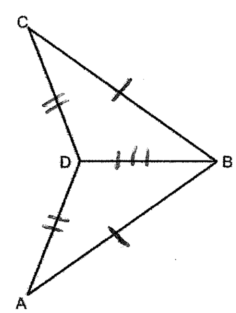
Prove: $\Delta ADE \cong \Delta BCE$



Statements		Reasons
1) AEB bisects DEC at E		1) Given
2) DE ≅ CE		2) Definition of a bisector
3) $\angle A \cong \angle B$		3) Given
4) $m\angle AED \cong m\angle CEB$		4) Vertical angles congruent
5) $\Delta ADE \cong \Delta BCE$		5) AAS

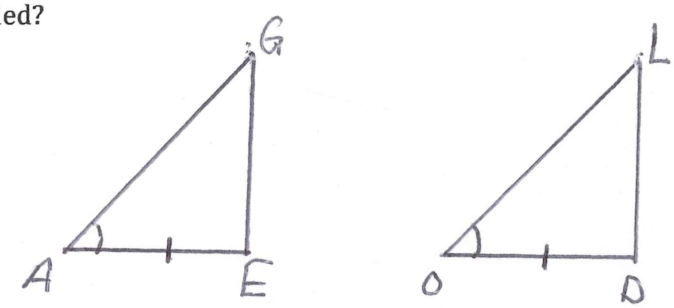
57. Given: $\overline{BA} \cong \overline{BC}$
$\overline{DA} \cong \overline{DC}$

Prove: $\angle ABD \cong \angle CBD$



Statements		Reasons
1) $\overline{BA} \cong \overline{BC}$		1) Given
2) $\overline{DA} \cong \overline{DC}$		2) Given
3) $\overline{BD} \cong \overline{BD}$		3) Reflexive property of congruence
4) $\Delta BCD \cong \Delta BAD$		4) SSS
5) $\angle ABD \cong \angle CBD$		5) CPCTC

58. In the diagram below of ΔAGE and ΔOLD, $\angle GAE \cong \angle LOD$ and $AE \cong OD$. To prove that ΔAGE ≅ ΔOLD by SAS, what other information is needed?



(A) $GE \cong LD$

(B) $\boxed{AG \cong OL}$

(C) $\angle AGE \cong \angle OLD$

(D) $\angle AEG \cong \angle ODL$

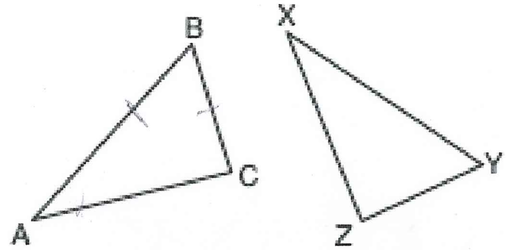
59. Which statements could be used to prove that ΔABC and ΔXYZ are congruent?

SSA ~~(A)~~ $\overline{AB} \cong \overline{XY}$, $\overline{BC} \cong \overline{YZ}$, and $\angle A \cong \angle X$

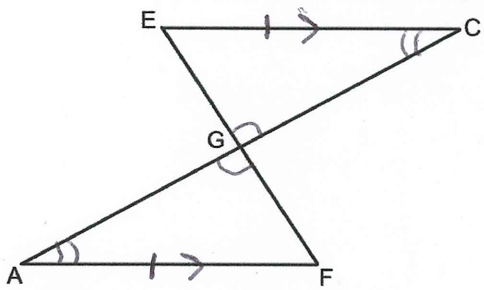
$\boxed{\text{AAS (B)}}$ $\overline{AB} \cong \overline{XY}$, $\angle A \cong \angle X$, and $\angle C \cong \angle Z$

AAA ~~(C)~~ $\angle A \cong \angle X$, $\angle B \cong \angle Y$, and $\angle C \cong \angle Z$

SSA ~~(D)~~ $\angle A \cong \angle X$, $\overline{AC} \cong \overline{XZ}$, and $\overline{BC} \cong \overline{YZ}$



60. In the accompanying diagram, $\overline{EC} \cong \overline{FA}$ and $\overline{EC} \parallel \overline{FA}$. Triangle *EGC* can be proved congruent to triangle *FGA* by



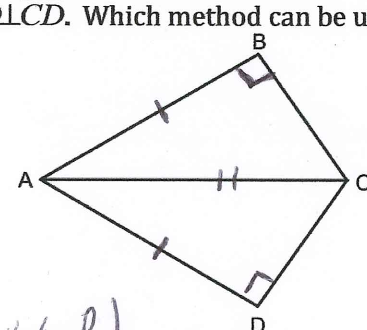
(A) HL

(B) AAA

(C) $\boxed{\text{AAS}}$

(D) SSA

61. In the diagram below, $\overline{BA} \cong \overline{DA}$, $\overline{AB} \perp \overline{CB}$, and $\overline{AD} \perp \overline{CD}$. Which method can be used to prove $\Delta ABC \cong \Delta ADC$?



(A) $\boxed{\text{HL}}$

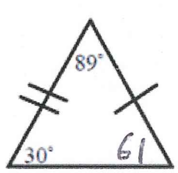
(B) SSS

(C) AAS

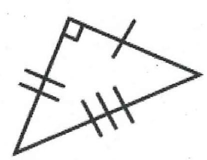
(D) SAS

(scalene, isosceles, equilateral)

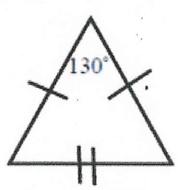
62. Classify the triangles based on their side lengths and angle measures: [acute, equiangular, obtuse, right]



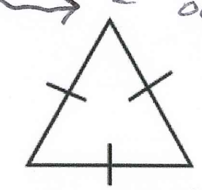
scalene
acute



scalene
right triangle



isosceles
obtuse



equilateral
equiangular