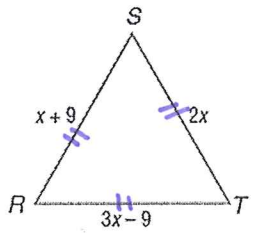
Name: Key HOUR: _____ Due Date: _____

2018/2019 ACC Geometry Midterm Review

Directions: This review consists of problems that could be on your midterm. Make sure you complete each problem and **show your work.**

1. For equilateral ΔRST, find the variable and the side lengths. All units are in inches.



$ST \cong SR$ def of eq. Δ.

$2x = x + 9$

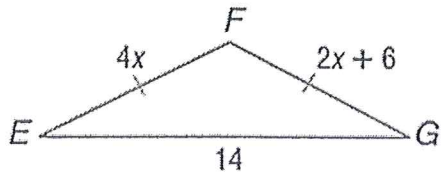
$x = 9$

$ST = 18$ cm

$RT = 18$ cm

$SR = 18$ cm

2. For isosceles ΔRST, find the variable and the side lengths. All units are in centimeters.



$EF \cong GF$ def of isos. Δ

$4x = 2x + 6$

$2x = 6$

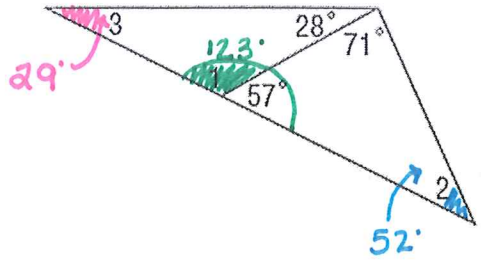
$x = 3$

$EG = 14$ cm

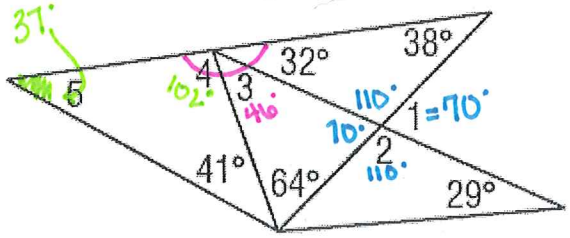
$EF = 12$ cm

$GF = 12$ cm

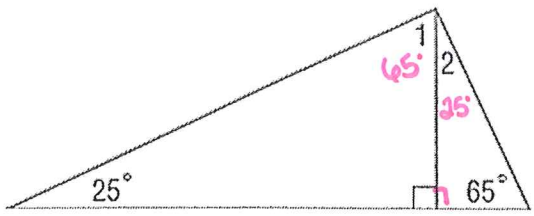
3. Find the missing angle measures, $m\angle 1$ and $m\angle 2$.



4. Find the missing angle measures.



5. Find the missing angle measures.



6. Do any of the following sets of numbers create a triangle?

a. 7, 20, 10 $7+10=17<20$

b. 7, 9, 12

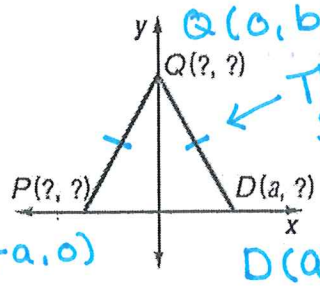
c. 16, 10, 9

d. $\sqrt{13}$, 6, 6

e. 7, 18, 11 $7+11=18$ X

Sum of the 2 smaller sides must be greater than the 3rd side.

7. What are the missing coordinates of the triangle?



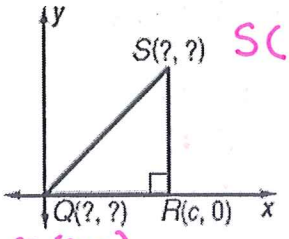
Q(0, b)

This should be marked

P(-a, 0)

D(a, 0)

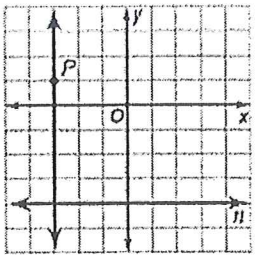
8. What are the missing coordinates of this isosceles right triangle?



S(c, c)

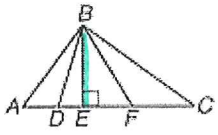
Q(0, 0)

9. What is the shortest distance from P to line n?



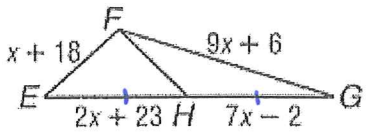
d=5 just count

10. What is the shortest distance from point B to segment AC?



$\overline{BE}$ The shortest distance is 1

11. If FH is a median of ΔEFG, find the perimeter of ΔEFG.



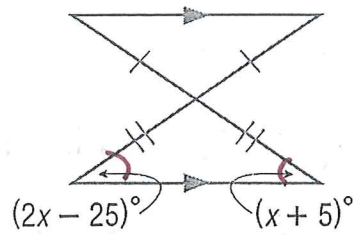
EH = GH def of median

$2x+23=7x-2$

$5=x$

P = 140

12. Find x.

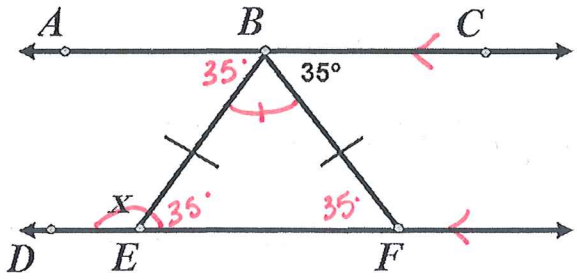


Base ∠s of isos. △s are ≅

$2x - 25 = x + 5$

$x = 30$

13. In the figure below, B is on $\overline{AC}$, E is on $\overline{DF}$, $\overline{AC}$ is parallel to $\overline{DF}$, and $\overline{BE}$ is congruent to $\overline{BF}$.. Name the legs of the isosceles triangle, name the base angles and vertex angle of the isosceles triangle, and provide an example of an exterior angle. What is the measure of <DEB and <EBF?



legs: BE, BF

base ∠s: ∠BFE and ∠FEB

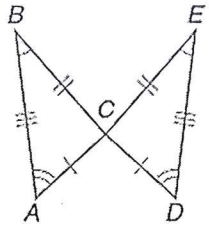
Vertex ∠: ∠EBF

Ext. ∠: ∠BED, ∠EBA, ∠FBC.

m∠DEB = 145°

m∠EBF = 110°

14. Identify the triangle △CAB is congruent to, then name all corresponding parts. There should be 6 pairs.



△CAB ≅ △CDE

angles

∠B ≅ ∠E

∠BCA ≅ ∠ECD

∠A ≅ ∠D

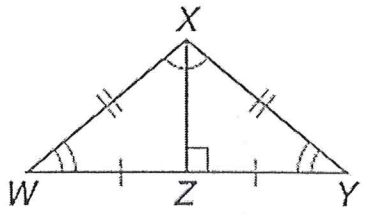
Sides

AB ≅ DE

CB ≅ CE

CA ≅ CD

15. Identify the triangle △XZW is congruent to, then name all corresponding parts. There should be 6 pairs.



△XZW ≅ △XZY

Sides

XZ ≅ XZ

XW ≅ XY

WZ ≅ YZ

angles

∠W ≅ ∠Y

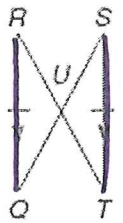
∠WXZ ≅ ∠YXZ

∠XZW ≅ ∠XZY

16. Write a two-column proof.

Given: $\overline{RQ} \cong \overline{ST}$ and $\overline{RQ} \parallel \overline{ST}$

Prove: $\triangle RUQ \cong \triangle TUS$



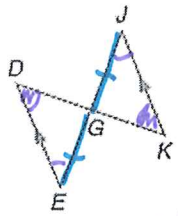
if you use an alt. w/a vertical in your proof it would be AAS.

1. RQ ≅ ST, RQ ∥ ST	1. given
2. ∠R ≅ ∠T, ∠Q ≅ ∠S	2. ∥ lines form ≅ alt. int. ∠s.
3. △RUQ ≅ △TUS	3. ASA

17. Write a two-column proof.

Given: $\overline{DE} \parallel \overline{JK}$, $\overline{DK}$ bisects $\overline{JE}$.

Prove: $\triangle EGD \cong \triangle JGK$



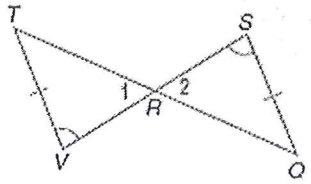
If vertical used, you could have ASA.

1. DE ∥ JK, DK bisects JE	1. given
2. JG ≅ EG	2. def of seg. bisector
3. ∠K ≅ ∠D, ∠J ≅ ∠E	3. ∥ lines form ≅ alt. int. ∠s.
4. △EGD ≅ △JGK	4. AAS

18. Write a two-column proof.

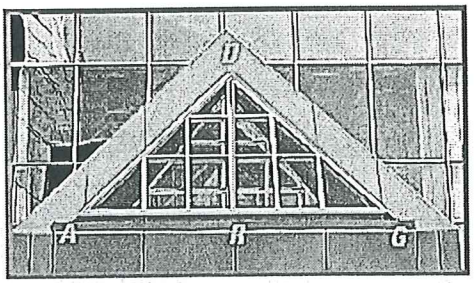
Given: $\angle V \cong \angle S$, $\overline{TV} \cong \overline{QS}$

Prove: $\overline{VR} \cong \overline{SR}$



1. ∠V ≅ ∠S, TV ≅ QS	1. given
2. ∠1 ≅ ∠2	2. vertical ∠s are ≅
3. △VRT ≅ △SRQ	3. AAS
4. VR ≅ VR	4. cpctc

19. REAL LIFE **ARCHITECTURE** You are designing the window shown in the photo. You want to make $\triangle DRA$ congruent to $\triangle DRG$. You design the window so that $\overline{DR} \perp \overline{AG}$ and $\overline{RA} \cong \overline{RG}$. Can you conclude that $\triangle DRA \cong \triangle DRG$?

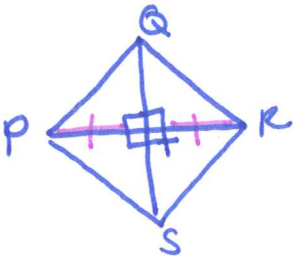


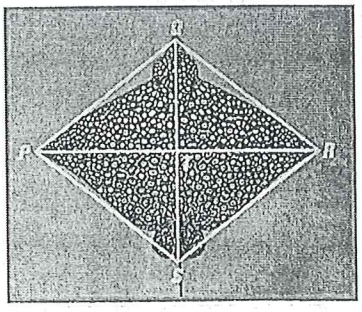
Yes, SAS

20. Write a two column proof using the stingray below.

GIVEN ▶ $\overline{QS} \perp \overline{RP}$, $\overline{PT} \cong \overline{RT}$

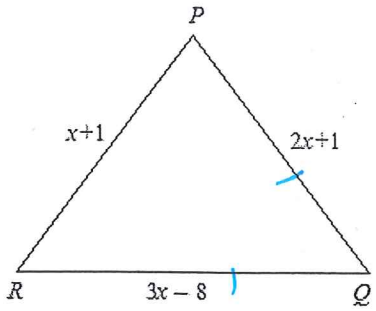
PROVE ▶ $\overline{PS} \cong \overline{RS}$





1. QS⊥RP, PT ≅ RT	1. given
2. ∠PTS = 90°, ∠RTS = 90°	2. def of ⊥
3. ∠PTS ≅ ∠RTS	3. subs.
4. TS ≅ TS	4. reflexive
5. △PTS ≅ △RTS	5. SAS
6. PS ≅ RS	6. cptct

21. Find x, PQ, QR, and RP if $\triangle PQR$ is an isosceles triangle with $\overline{PQ} \cong \overline{QR}$.



$PQ \cong QR$ def of isos. $\triangle$

$2x+1 = 3x-8$

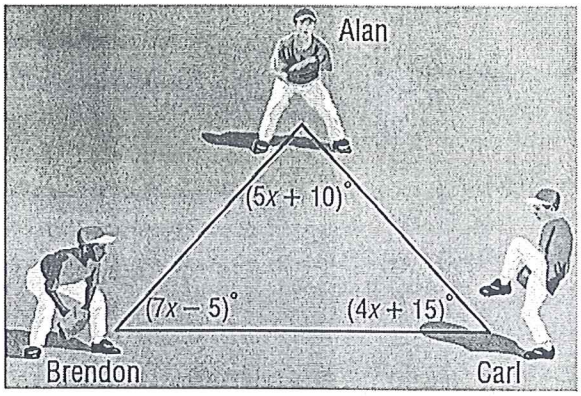
$9 = x$

$PQ = 19$

$RQ = 19$

$RP = 16$

22. **BASEBALL** Alan, Brendon, and Carl were standing in a triangular formation shown. They were throwing the baseball to warm up for the game. Find the value of x, the measure of each angle and then conclude what two people must throw the farthest distance.



$5x+10+4x+15+7x-5 = 180$ $\triangle$ sum

$16x+20 = 180$

$x = 10$

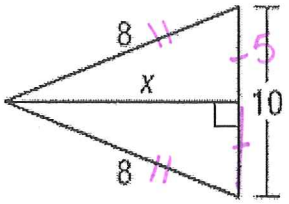
$\angle A = 60°$

$\angle B = 65°$

$\angle C = 55°$

Alan and Carl are farthest apart b/c op. the greatest $\angle$ is the greatest side.

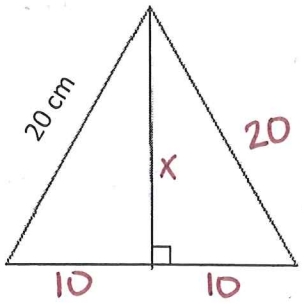
23. Find x.



$x^2+5^2 = 8^2$

$x = \sqrt{39}$

24. Find the altitude of an equilateral triangle whose sides are 20 cm long.

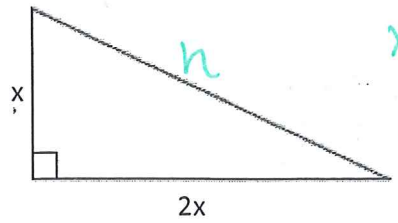


$x^2+10^2 = 20^2$

$x^2 = 300$

$x = 10\sqrt{3}$ cm

25. Find the hypotenuse of a right triangle where one leg is twice the other leg.



$x^2 + (2x)^2 = h^2$

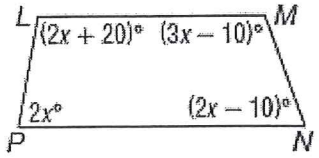
$x^2 + 4x^2 = h^2$

$5x^2 = h^2$

$\sqrt{5x^2} = h$

$h = |x|\sqrt{5}$

26. Find x, the interior sum, exterior sum, and <M.



$180(4-2) = 360°$ → Interior Angle Sum = 360°

Exterior Angle Sum (always) = 360°

$2x+20+3x-10+2x-10+2x = 360$

$9x = 360$

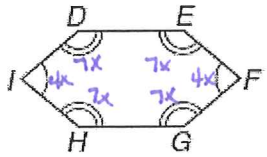
$x = 40$

x = 40°

<M = 110°

27. Find x, the interior sum, exterior sum, and <G.

hexagon *DEFGHI* with
$\angle D \cong \angle E \cong \angle G \cong \angle H$, $\angle F \cong \angle I$,
$m\angle D = 7x$, $m\angle F = 4x$



$180(6-2)$ → Interior Angle Sum = 720°

Exterior Angle Sum = 360°

$7x+7x+4x+7x+7x+4x = 720$

$36x = 720$

$x = 20$

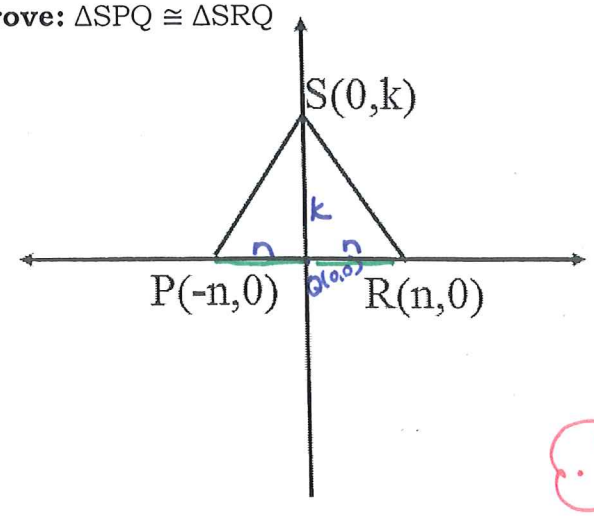
x = 20

<G = 140°

28. Write a coordinate proof.

Given: Coordinates of vertices of ΔSPQ and ΔSRQ.

Prove: ΔSPQ ≅ ΔSRQ



$SQ = k$ reflexive → $SQ \cong SQ$

$PQ = n$, $RQ = n$ → $PQ \cong RQ$ Subs.

$n^2 + k^2 = SR^2$

$\sqrt{n^2+k^2} = SR$

$n^2 + k^2 = SP^2$

$\sqrt{n^2+k^2} = SP$

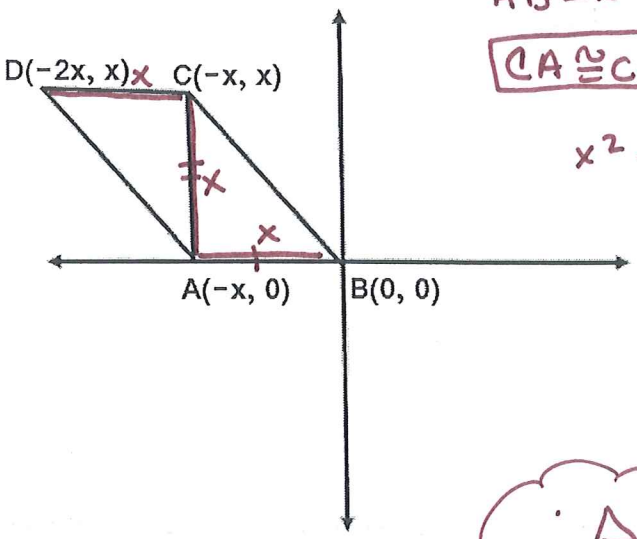
$SR \cong SP$ Subs.

$\therefore \Delta SPQ \cong \Delta SRQ$ by SSS.

29. Write a coordinate proof.

Given: Coordinates of vertices of ΔACD and ΔCAB.

Prove: ΔACD ≅ ΔCAB



$DC = x$
$AB = x$ $\Rightarrow$ $\overline{DC} \cong \overline{AB}$ SbS

$\overline{CA} \cong \overline{CA}$ reflexive

$x^2 + x^2 = AD^2$

$2x^2 = AD^2$

$\sqrt{2x^2} = AD$

$\sqrt{2} \quad \sqrt{x^2}$

x

$AD = |x|\sqrt{2}$

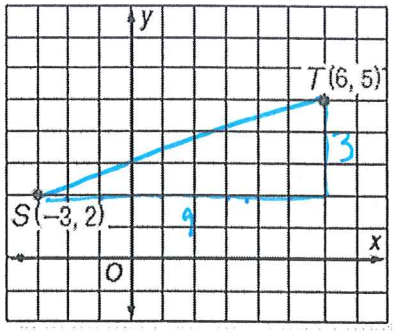
$x^2 + x^2 = BC^2$

$BC = |x|\sqrt{2}$

$\overline{AD} \cong \overline{BC}$ subs

$\therefore \Delta ACD \cong \Delta CAB$ by SSS.

30. A. Find the distance between points S and T.
B. If T is the midpoint of SR, find the endpoint R.



A.) $3^2 + 9^2 = ST^2$

$\sqrt{90} = ST$

$\sqrt{9} \quad \sqrt{10}$

$3\sqrt{10} = ST$

B.) $\left(\frac{-3+x}{2}, \frac{2+y}{2}\right) = (6, 5)$

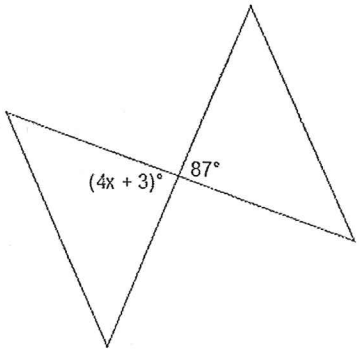
$\frac{-3+x}{2} = 6$ $\quad$ $\frac{2+y}{2} = 5$

$-3 + x = 12$ $\quad$ $2 + y = 10$

$x = 15$ $\quad$ $y = 8$

$R(15, 8)$

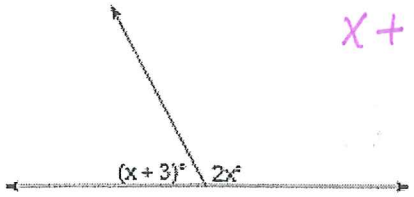
31. Find the value of x.



$87 = 4x + 3$

$21 = x$

32. What is the degree measure of the larger of the two angles?

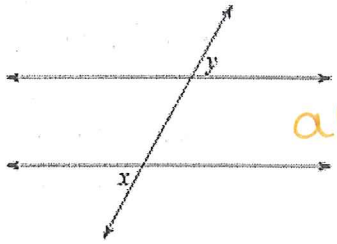


$x+3+2x=180$

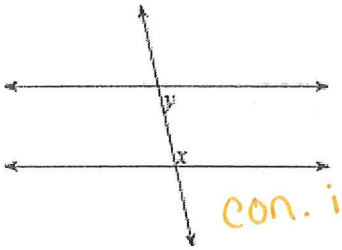
$x=59$

larger $\angle = 118°$

33. Name the relationships.

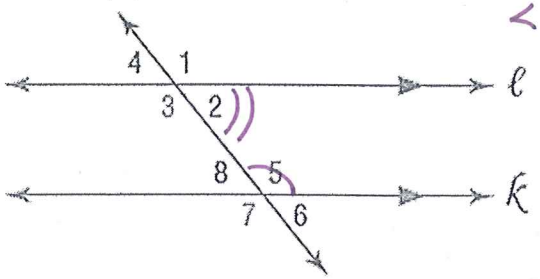


alt. Ext



con. int.

34. Find x so that lines l and k are parallel, given $< 2 = 27x + 2$ and $< 5 = 18x - 2$.

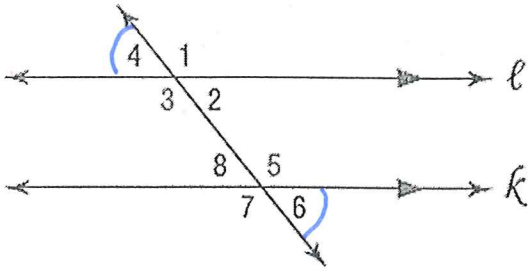


$\angle 2 + \angle 5 = 180$ // lines form suppl. con. int $\angle$s

$27x + 2 + 18x - 2 = 180$

$x = 4$

35. Find x so that lines l and k are parallel, given $< 4 = 17x$ and $< 6 = -5 + 18x$.

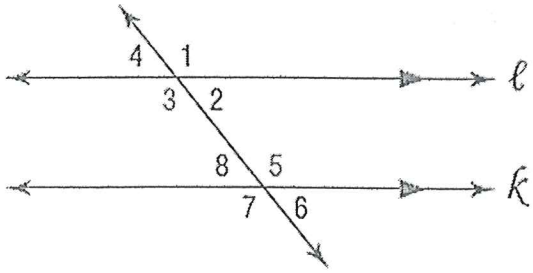


$\angle 4 \cong \angle 6$ // lines form $\cong$ alt. ext. $\angle$s.

$17x = -5 + 18x$

$5 = x$

36. Name all the relationships that allow us to say l is parallel to k.



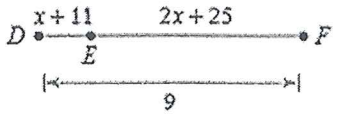
$< 1 \cong < 7$ proves $l \| k$ because $\cong$ alt. ext $\angle$s form // lines

$< 2 \cong < 8$ proves $l \| k$ because $\cong$ alt. int $\angle$s form // lines

$< 3 \cong < 7$ proves $l \| k$ because $\cong$ corr. $\angle$s form // lines

$< 3 + < 8 = 180$ proves $l \| k$ because suppl. con. int $\angle$s form // lines

37. Find x, then the length of EF. Show your work, geometry and justify your set up!



DE + EF = DF Seg. add.

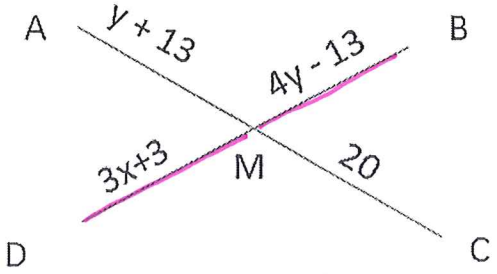
$x+11+2x+25=9$

$3x+36=9$

$x=-9$

$EF=7$

38. Point M is the segment bisector of lines AC and BD. Find x, y, and BM. Show your work, geometry and justify your set up!



$DM \cong BM$ def of Seg. bisector

$AM \cong CM$ def. of Seg. bisector

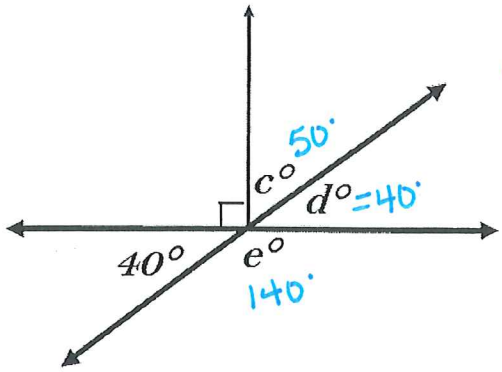
$y+13=20$

$y=7$

$3x+3=4(7)-13$

$x=4$

39. Find all the missing angle measures. Then find the value of 2d – 3(e – c).



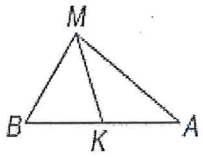
$=2(40)-3(140-50)$

$=2(40)-3(90)$

$=80-270$

$=-190°$

40. Given the following triangle with angle bisector MK state if the following statements are true or false.



a. $m<MKA = 90°$ False

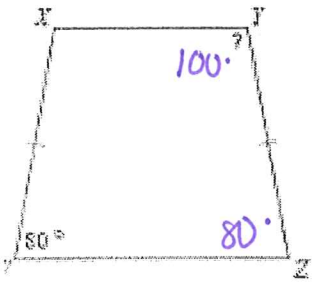
b. $BK \cong AK$ False

c. $m<BMK = m<AMK$ True

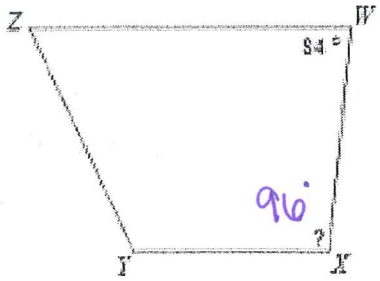
d. ΔBMA is isosceles with vertex angle M. False

41. Find the missing angle in the following trapezoids.

a.



b.



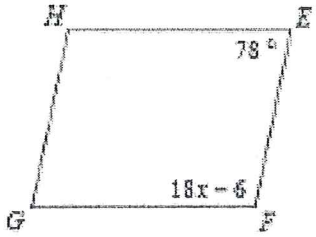
42. Given that the following are parallelograms, find x.

a.

$2x-8=3+x$

$\boxed{x=11}$

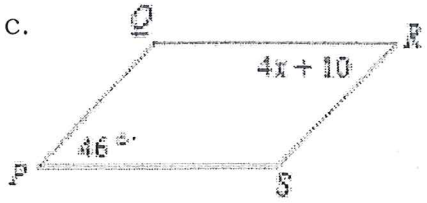
b.



$78+18x-6=180$

$\boxed{x=6}$

c.



$46=4x+10$

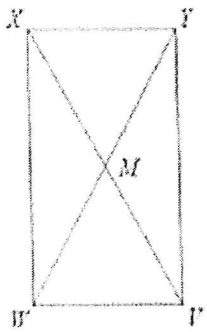
$\boxed{9=x}$

the variable

43. Find ~~x~~ for the following quadrilaterals:

a. Suppose VWXY is a rectangle and

XV= 4x - 9 and WY = x + 3



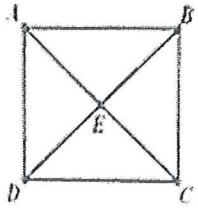
diags of a Rect. are ≅

$4x-9=x+3$

$\boxed{x=4}$

b. Suppose ABCD is a square and

AC = 9y – 8 and BD = 7y +8



diags of a Square are ≅

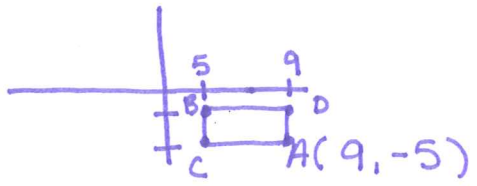
$9y-8=7y+8$

$\boxed{y=8}$

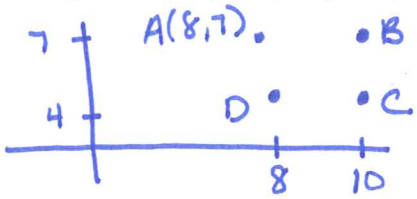
* Know what to do when given ½ of diag + whole diag.

44. a. $ABCD$ is a rectangle with $B(5,-3), C(5,-6)$, and $D(9,-3)$. Find the coordinates of A.

Change order
CBDA



b. $ABCD$ is a rectangle with $B(10,7), C(10,4)$, and $D(8,4)$. Find the coordinates of A.

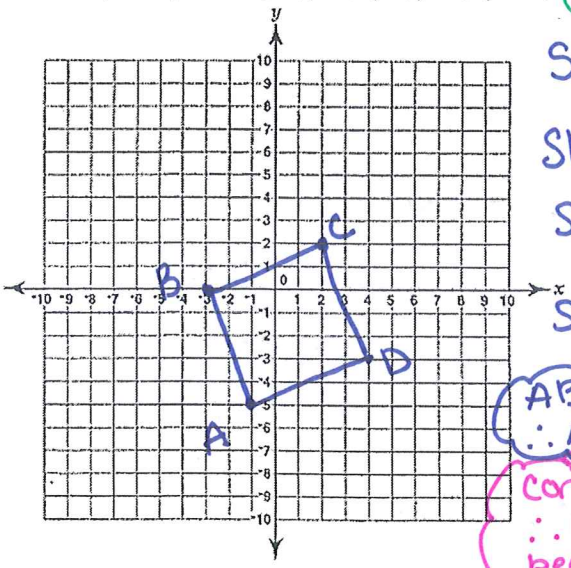


A(8,7)

45. Given the set of vertices, choose all that apply: Quadrilateral, Parallelogram, Rectangle, Rhombus, and/or Square.

a. $A(-1,-5), B(-3,0), C(2,2), D(4,-3)$

ABCD is a Quad. because it has 4 sides



Slope AB = $-\frac{5}{2}$

Slope BC = $\frac{2}{5}$

Slope CD = $-\frac{5}{2}$

Slope AD = $\frac{2}{5}$

$2^2+5^2=AB^2$ $\quad 2^2+5^2=CD^2$

$\sqrt{29}=AB$ $\quad \sqrt{29}=CD$

$2^2+5^2=BC^2$ $\quad 2^2+5^2=AD^2$

$\sqrt{29}=BC$ $\quad \sqrt{29}=AD$

ABCD is a Rhombus because all 4 sides are $\cong$

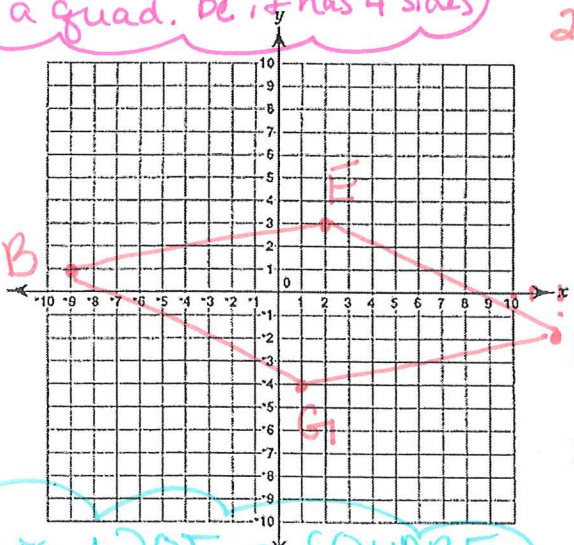
AB // CD, BC // AD
∴ ABCD is a parallelogram

Cons. Sides are ⊥
∴ ABCD is a rectangle because it has 4 Right ∠s.

The last thing we know is b/c it has 4 Right ∠s and 4 $\cong$ sides it is a Square

b. $B(-9,1), E(2,3), F(12,-2), G(1,-4)$

BEFG is a quad. be it has 4 sides



$2^2+11^2=BE^2$

$\sqrt{125}=BE$

$5\sqrt{5}=BE$

$10^2+5^2=EF^2$

$\sqrt{125}=EF$

$5\sqrt{5}=EF$

$2^2+11^2=GF^2$

$5\sqrt{5}=GF$

$10^2+5^2=BG^2$

$5\sqrt{5}=BG$

all 4 sides are $\cong$ ∴ BEFG is a RHOMBUS

Slope GB = $\frac{-5}{10}=-\frac{1}{2}$

Slope BE = $\frac{2}{11}$

Slope EF = $\frac{-5}{10}=-\frac{1}{2}$

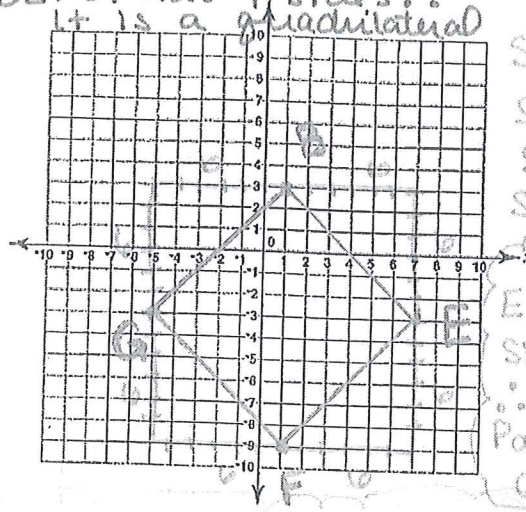
Slope FG = $\frac{2}{11}$

GB // EF and BE // FG
∴ BEFG is a Parallelogram.

BEFG is NOT a SQUARE or rectangle b/c it does not have 4 Right ∠s

c. $B(1, 3), E(7, -3), F(1, -9), G(-5, -3)$

BEFG has 4 sides ∴ it is a quadrilateral



Slope BE = -1
Slope EF = 1
Slope FG = -1
Slope GB = 1

BE // FG and EF // GB so op. sides are // ∴ BEFG is a Parallelogram by def.

Consecutive sides are ⊥ creating 4 right ∠s ∴ BEFG is a Rectangle by def

$GB^2 = 6^2 + 6^2$ $GB = 6\sqrt{2}$
$BE^2 = 6^2 + 6^2$ $BE = 6\sqrt{2}$
$FE^2 = 6^2 + 6^2$ $FE = 6\sqrt{2}$
$GF^2 = 6^2 + 6^2$ $GF = 6\sqrt{2}$

ALL 4 ≅ sides ∴ BEFG is a Rhombus by def

ALL 4 sides are ≅, and Consecutive sides are ⊥ creating 4 right ∠s ∴ BEFG is a square

46. a. In a heptagon, one interior angle measures 35 degrees. What is the total measure of the other 6 interior angles?

Sum of int. ∠s $= 180(7-2) = 900°$

$1 \angle = 35$ $900 - 35°$

The sum of the rest $= 865°$

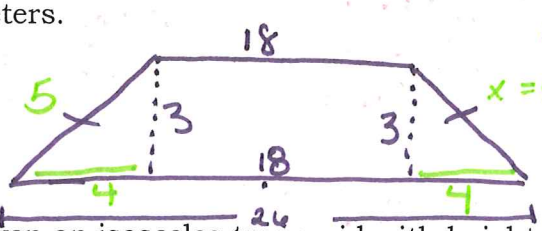
b. In a nonagon, one interior angle measures 120 degrees. What is the total measure of the other 8 interior angles?

$180(9-2) = 1260°$

$120 + x = 1260$ ← sum of other ∠s

1,140° = total of other 8 int. ∠s

47. a. Given an isosceles trapezoid with height 3m and bases 18m and 26m. Find the perimeter, in meters.

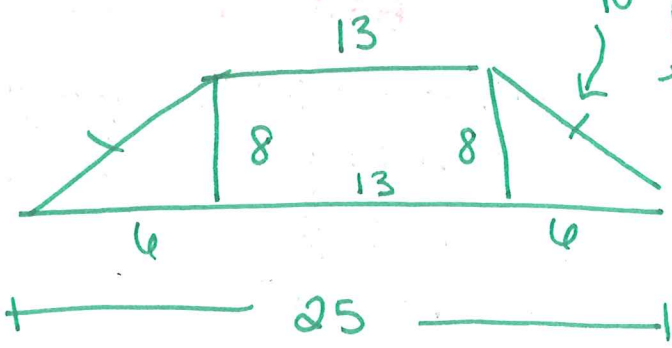


$3^2 + 4^2 = x^2$
$x = 5$

$x = 5$

P = 54m

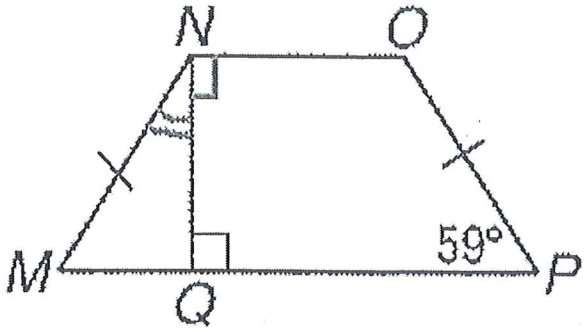
b. Given an isosceles trapezoid with height 8 m and bases 13 m and 25 m. Find the perimeter, in meters.



10 m by Pythm thm.

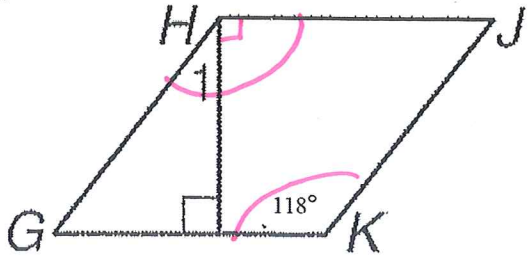
P = 58 m

48. For isosceles trapezoid *MNOP*, find m<M, m<MNO and *m<MNQ*.



m<M= 59° m<MNO= 121° m<MNQ= 31°

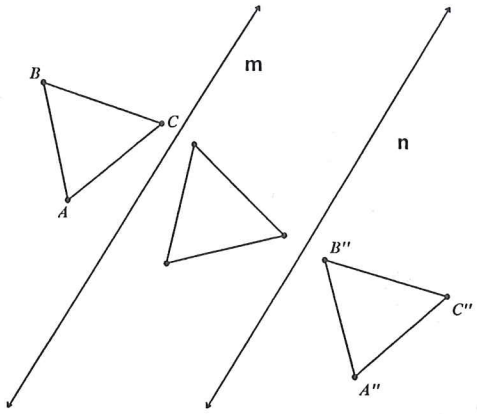
49. Find m< 1 if m<K=118.



$\angle 1 + 90 = 118$

$\angle 1 = 28°$

50. If $m \| n$ and triangle ABC is reflected over line m first, then line n, what transformation would occur from ΔABC to ΔA"B"C"?



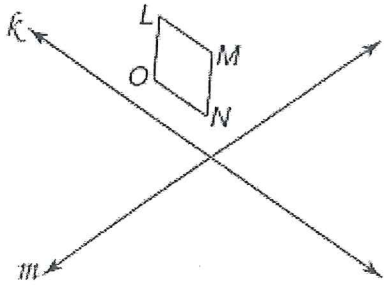
a. reflection

b. dilation

c. rotation

d. translation

51. If LMNO is reflected over line k first, then line m, what transformation would occur from LMNO to L"M"N"O"?



a. reflection

b. dilation

c. rotation

d. translation

52. Given point A(6, -1), find its image if it is reflected across the y-axis.

a. (-6, -1) b. (6, -1)
c. (-6, 1) d. (-1, 6)

53. Given the point (x, y), write the image point if it is reflected across the x-axis.

(x, -y)

54. What is the image of Y(-7, 4) under the translation (x,y) → (x + 5, y)?

Y'(-2, 4)

55. What is the pre-image of X'(2, 5) under the translation (x,y) → (x - 1, y + 2)?

Read

X (3, 3)

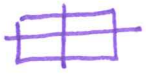
56. Find the reflection of the point A(6, -1) across the line y = x.

A'(-1, 6)

57. Symmetry: How many lines of symmetry does a(n) ....

a. Square have? 4

b. Rectangle have? 2

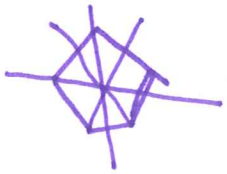


c. Isosceles Trapezoid have? 1

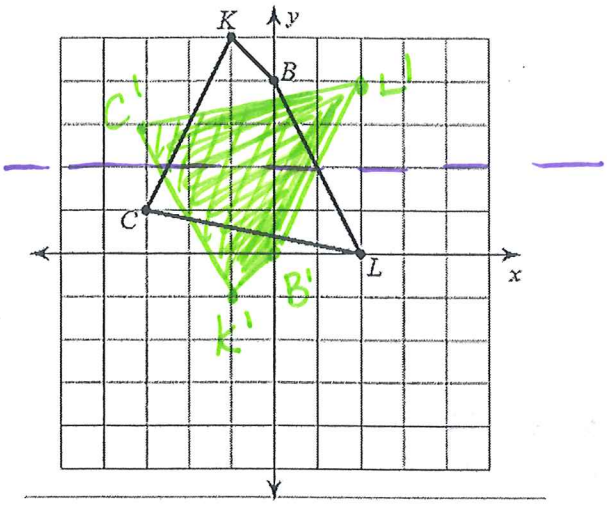
d. Isosceles Trapezoid have? 1

e. Equilateral Triangle have? 3

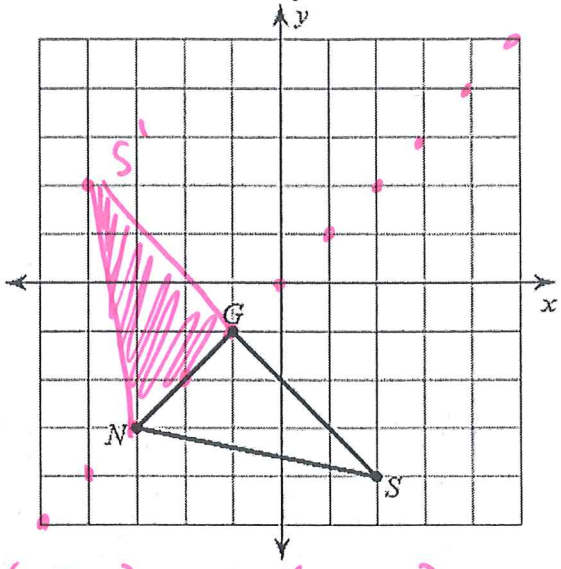
f. Pentagon have? 5



58. Graph the image of the figure with a reflection across y = 2

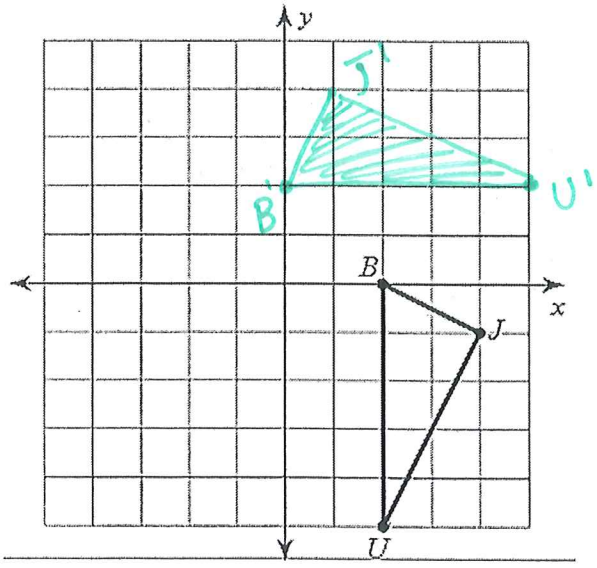


59. Graph the image of the figure with a reflection across y = x

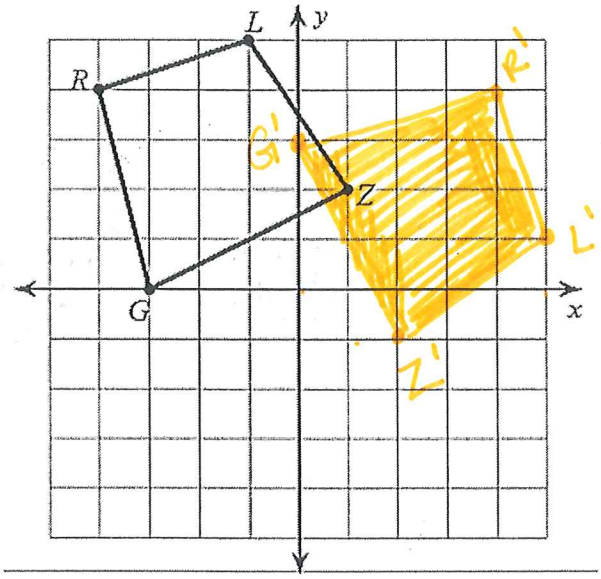


$(x, y) \rightarrow (y, x)$

60. Graph the image of the figure with a rotation 90° counterclockwise about the origin.

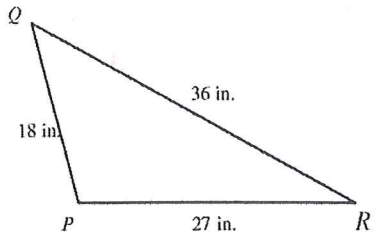


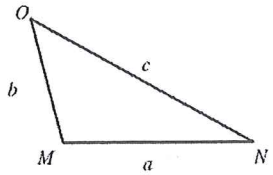
61. Graph the image of the figure with a rotation 90° clockwise about the origin.



62. $\Delta QPR \sim \Delta OMN$

Find a, b, and c if the perimeter of ΔMON is 63 inches. All measurements are in inches.





$PR = SLR$

$\frac{81}{63} = \frac{36}{c}$

$c = 28$

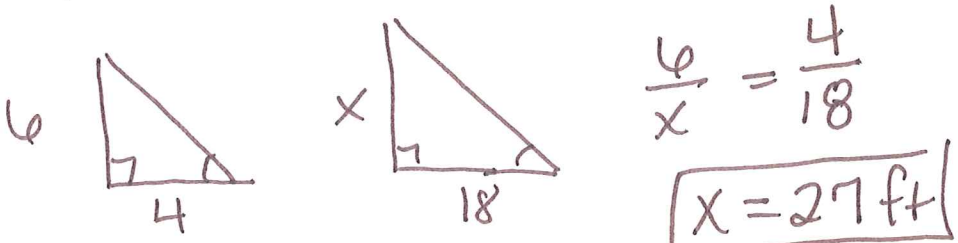
$\frac{81}{63} = \frac{18}{b}$

$b = 14$

$\frac{81}{63} = \frac{27}{a}$

$a = 21$

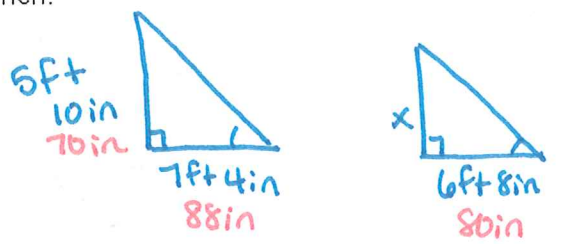
63. At a certain time of day, a 6 ft man casts a 4 ft shadow. At the same time of day, how tall is a tree that casts an 18 ft shadow?



$\frac{6}{x} = \frac{4}{18}$

$x = 27$ ft

64. If a 5 ft 10 in. person casts a 7 ft 4 in. shadow, how tall is a person who, at the same time, casts a 6 ft 8 in. shadow? Give your answer to the nearest inch.



$\frac{x}{70} = \frac{80}{88} = 63.\overline{63}$

$x \approx 64$ in

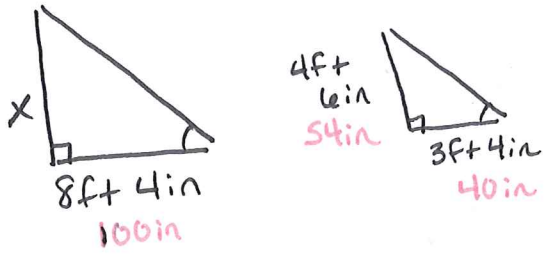
65. Private eye Samantha Diamond places a mirror on the ground between herself and an apartment building and stands so that when she looks into the mirror, she sees into a window. The mirror's crosshairs are 1.22 meters from her feet and 7.32 meters from the base of the building. Sam's eye is 1.82 meters above the ground. How high is the window?

$\frac{1.82}{x} = \frac{1.22}{7.32}$

$x \approx 10.92$m

Directions: Solve each problem and show a diagram with each question which accurately labeled measurements.

66. At a specific time of day, a flag pole has a shadow 8ft 4in long, at the same time of day Jose who is only 4ft 6in tall has a shadow of 3ft 4in long. Find the height of the flagpole. Please leave final answer as an exact value, no rounding!



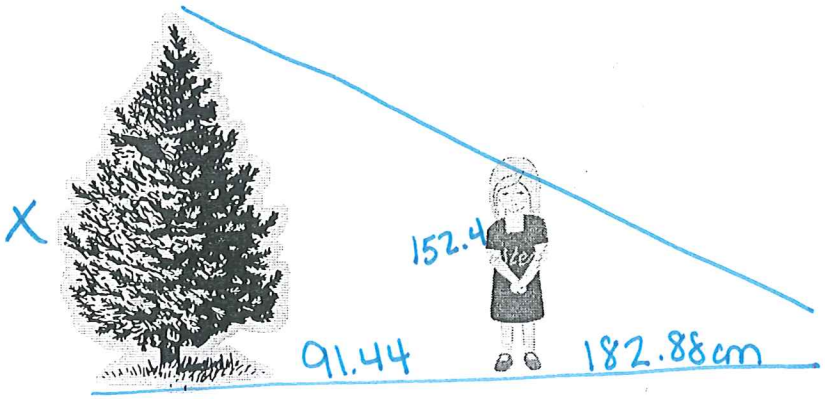
The flagpole is: 11 ft 3 in

$\frac{X}{54} = \frac{100}{40}$

$X = 135in \div 12 = 11.25$

$11 \times 12 = 132 + 3 = 135in$

67. Nicole wants to find out the height of her favorite pine tree so that she can fit it in her house for Christmas. She stands within the tree's shadow and walks until her shadow meets the trees shadow. Nicole is 152.4cm tall. Her feet are 91.44cm from the base of the tree. She also knows that the tree has a shadow of 274.32cm long at this time of day. Help Nicole find the height of her favorite tree. If she can fit a 250cm tree in her living room, will this tree fit for the holidays? Explain. Please leave final answer in cm and round to the nearest hundredth.



Height of tree: 228.7cm

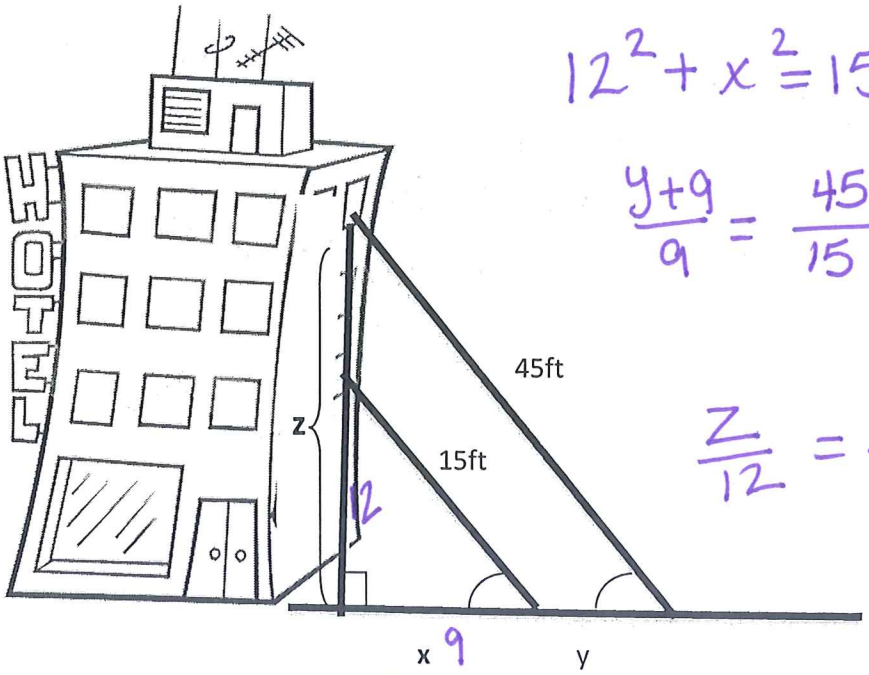
Can she use the tree for Christmas? yes

Explain.....

$\frac{X}{152.4} = \frac{274.32}{182.8}$

$X = 228.7cm$

68. The local fire academy is practicing evacuating a hotel. Two teams are going through two windows. Window one, 12 feet above the ground and the other "z" ft above the ground. They are using a 15ft ladder to get to the lower window and a 45ft ladder to get to the higher window. Find z, the distance between the short ladder and the building (x), the distance between the two ladders (y) and the distance between the two windows with the ladders. Keep answer in feet and round to the nearest tenth <u>if needed</u>.



$12^2 + x^2 = 15^2$

$\frac{y+9}{9} = \frac{45}{15}$

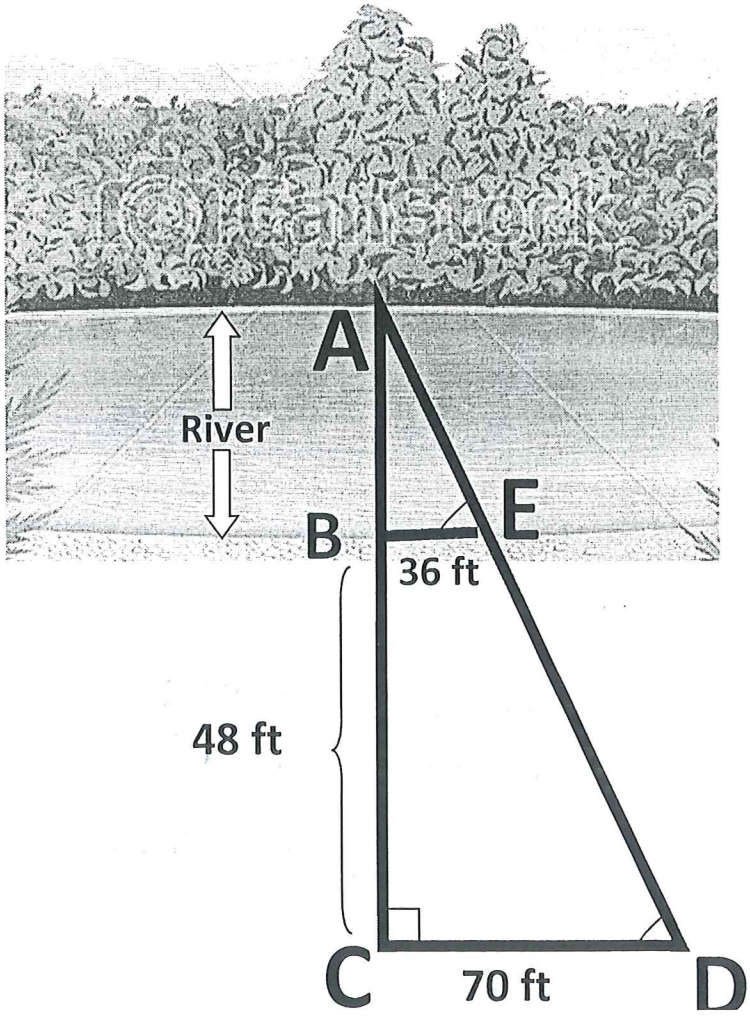
$\frac{z}{12} = \frac{45}{15}$

X= 9ft

Y= 18ft

z= 36ft

69. How wide is the river?
Round to the nearest tenth of a foot.

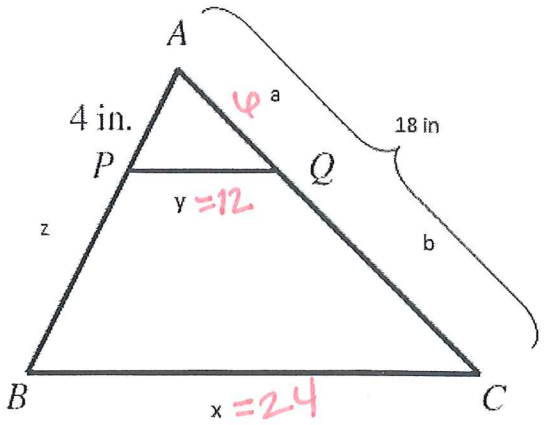


$\frac{x}{x+48} = \frac{36}{70}$

$70x = 36x + 1724$

$x = 50.8$ ft

70. The perimeter of △ABC = 54 inches, a = 6 inches and the perimeter of △APQ = 18 inches.
△ABC ~ △APQ. Find b, x, y, and z.



$PR = \frac{54}{18} = \frac{3}{1}$

$\frac{a}{18} = \frac{6}{3}$ $a = 6$

$\frac{x}{8} = \frac{3}{1}$ $x = 24$

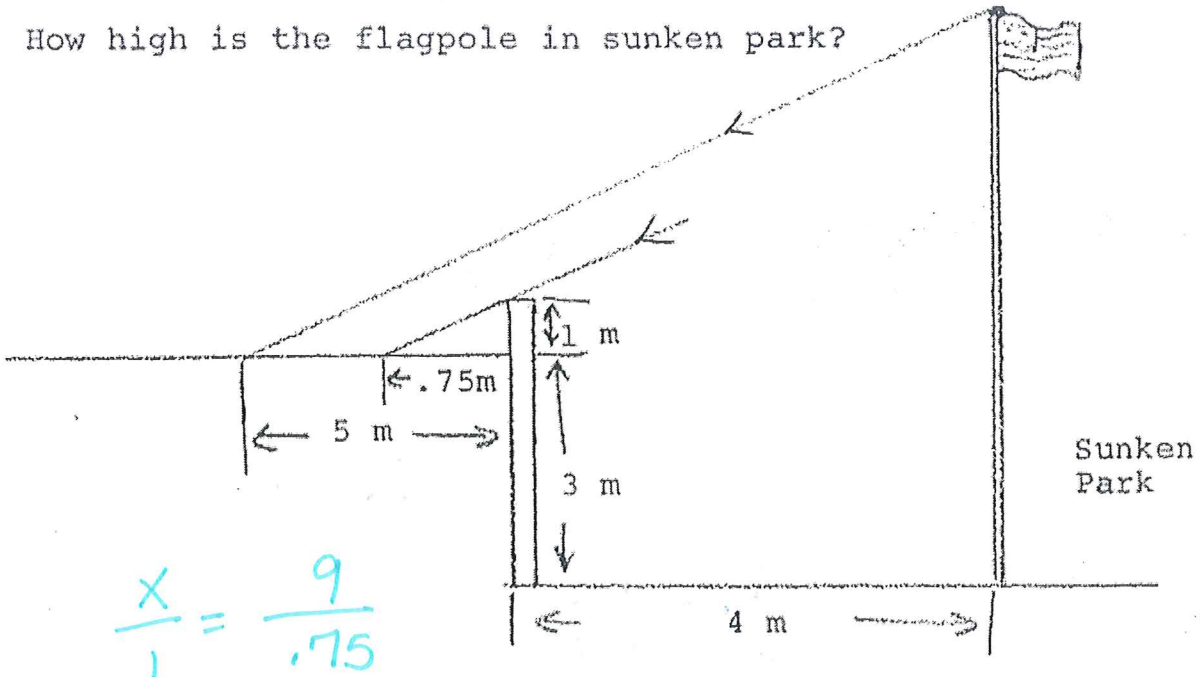
b = 12in

x = 24in

y = 8in

z = 8in

71. How high is the flagpole in sunken park?



$\frac{x}{1} = \frac{9}{.75}$

$x = 12$

$+3$

Flagpole = 15m

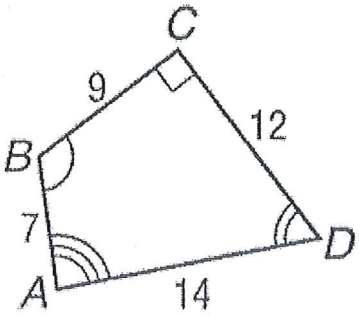
72. A basketball player made 36 free throws in 16 games. Find the ratio of games to free throws.

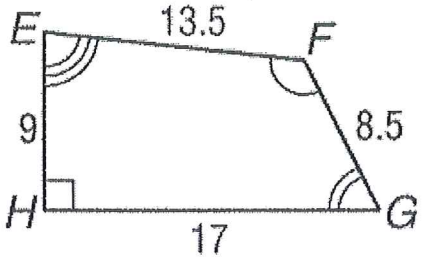
a. 4:9
b. 9:4
c. 6:4
d. 9:5

73. There are 84 boys in a freshman class of 146 students. Find the ratio of boys to girls.

a. 42:73
b. 31:42
c. 42:31
d. 73:42

74. Determine whether quadrilateral *ABCD* ~ quadrilateral *EFGH*. Justify your answer.



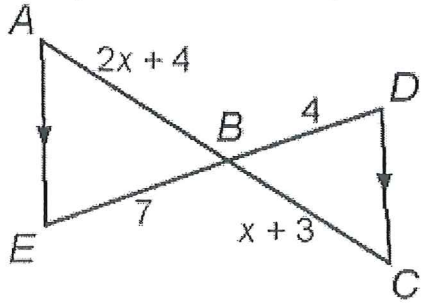


$\angle C \not\cong \angle G$ Corr. $\angle$s are not $\cong$
$\therefore$ cannot be similar.

75. The ratio of the measures of the three angles of a triangle is 3:4:8. Find the measure of the largest angle.

$3x + 4x + 8x = 180$
$x = 12$
$\angle = 96°$

76. Complete the similarity statement. Find x, AB and BC



$\triangle ABE \sim \triangle CBD$

$\frac{CB}{AB} = \frac{BD}{BE}$

$\frac{x+3}{2x+4} = \frac{4}{7}$

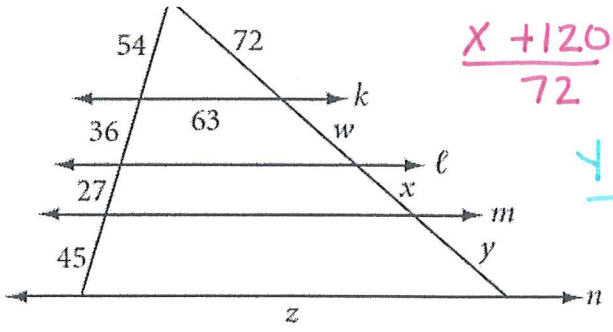
$7(x+3) = 4(2x+4)$
$7x + 21 = 8x + 16$
$x = 5$

x= 5

AB= 14

BC= 8

77. $k \parallel \ell \parallel m \parallel n$



$\frac{72+w}{72} = \frac{90}{54}$ → $w = 48$

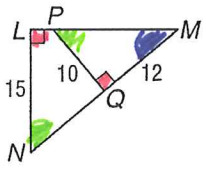
$\frac{x+120}{72} = \frac{117}{54}$ → $x = 36$

$y = 60$

$\frac{y+156}{72} = \frac{162}{54}$ → $z = 189$

& $\frac{z}{63} = \frac{162}{54}$

78. State the similarity statement and find LM.

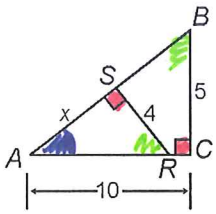


$\triangle LMN \sim \triangle QMP$

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

$x = 18 \Rightarrow$ LM=18

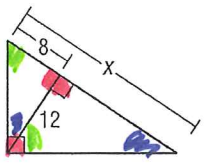
79. State the similarity statement and find x.



$\triangle ASR \sim \triangle ACB$

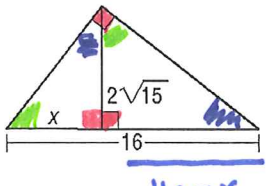
$\frac{x}{10} = \frac{4}{5}$ $x=8$

80. Find x.



$\frac{x-8}{12} = \frac{12}{8}$ $x=26$

81. Find x.



$16-x$

$\frac{16-x}{2\sqrt{15}} = \frac{2\sqrt{15}}{x}$

$x(16-x) = 2\sqrt{15} \times 2\sqrt{15}$

$16x - x^2 = 4\sqrt{15 \cdot 15}$

$16x - x^2 = 60$

$0 = x^2 - 16x + 60$

$0 = (x-10)(x-6)$

$x=10$ or $x=6$