

Geometry - Fall Semester Final Exam Review

Solve each equation.

1) $-9(1 + 12a) + 1 = -8(1 + a)$

2) $6(-4 + x) = -8(x - 11)$

Simplify.

3) $12\sqrt{28}$

4) $3\sqrt{1183}$

5) $3\sqrt{2} - 2\sqrt{63} + 4\sqrt{8} - 2\sqrt{32}$

6) $4\sqrt{32} + 3\sqrt{32} - \sqrt{24} + 3\sqrt{7}$

7) $-6\sqrt{21}(-\sqrt{3} + 3)$

8) $6\sqrt{42}(-6\sqrt{6} - 6\sqrt{7})$

9) $\frac{2\sqrt{3} + 5\sqrt{2}}{5\sqrt{15}}$

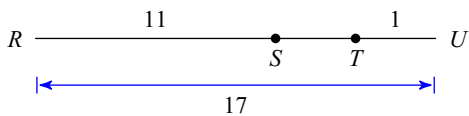
10) $\frac{\sqrt{5} + 3}{3\sqrt{20}}$

Use a ruler to measure the length of each line segment. Measure each segment in millimeters. Round your measurements to the nearest millimeter. Also state the maximum error and maximum percent of error in each measurement.

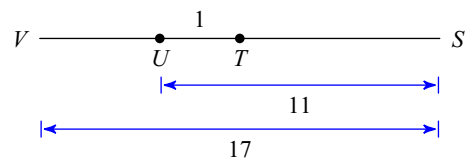


Find the length indicated.

13) Find ST

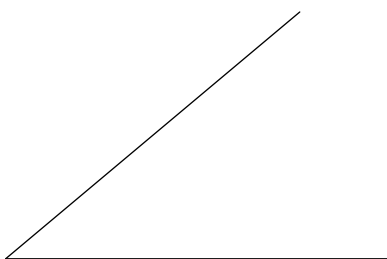


14) Find VT

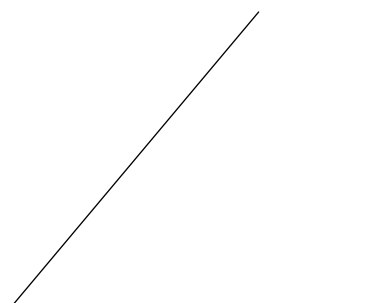


Find the measure of each angle to the nearest degree.

15)



16)



Draw an angle with the given measurement.

17) 130°



18) 124°



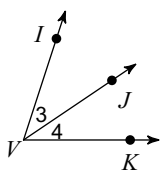
Draw and label an angle to fit each description.

19) a straight angle, $\angle RQP$

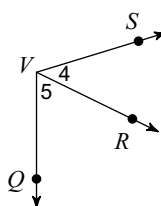
20) a right angle, $\angle 6$

Name all the angles that have V as a vertex.

21)

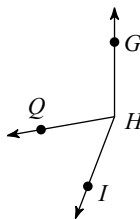
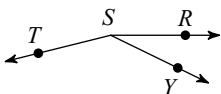


22)



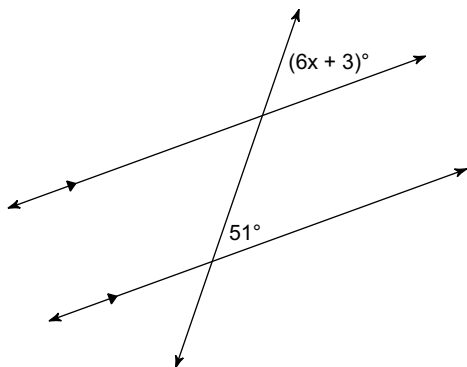
23) Find $m\angle RSY$ if $m\angle YST = 140^\circ$,
 $m\angle RSY = 26x$, and $m\angle RST = 167x - 1$.

24) $m\angle IHG = 159^\circ$, $m\angle IHQ = x + 70$,
 and $m\angle QHG = x + 111$. Find $m\angle QHG$.

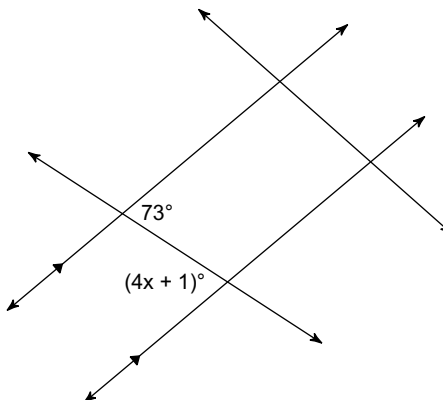


Find the value of x .

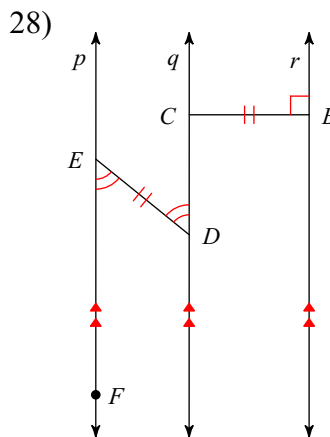
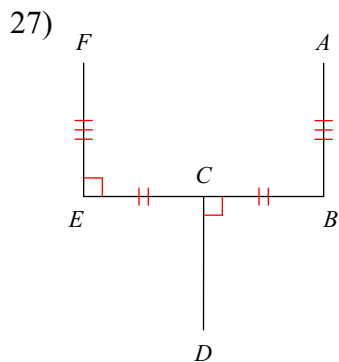
25)



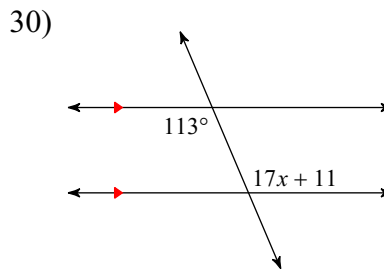
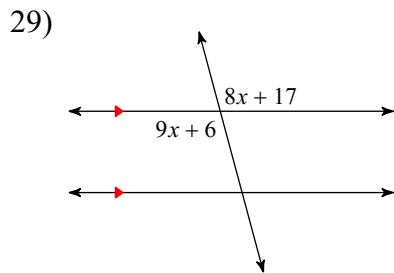
26)



List all information given by the marks on the diagram.

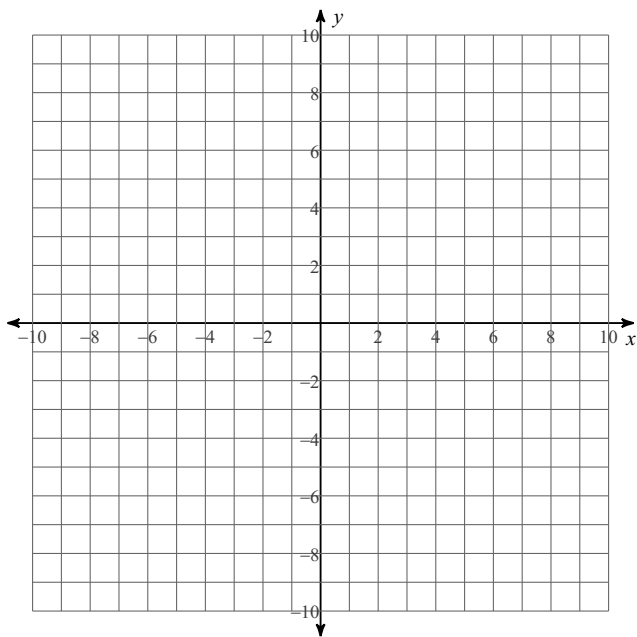


Solve for x .



Plot each point.

- 31) $Q(6, 0)$ $R(-1, -5)$ $S(-9, 7)$
 $T(5, 4)$ $U(4, -5)$



Find the midpoint of the line segment with the given endpoints.

32) $(-7.3, -11.7), (-11.244, -4.8)$

33) $(-10.8, 6), (4.6, 4.9)$

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

34) $(0.3, 5.6), (-3, -7.8)$

35) $(-3.5, 8), (-7.5, 5)$

Find the slope of a line parallel to each given line.

36) $-x = -4 + 4y$

37) $-4x - 5y - 20 = 0$

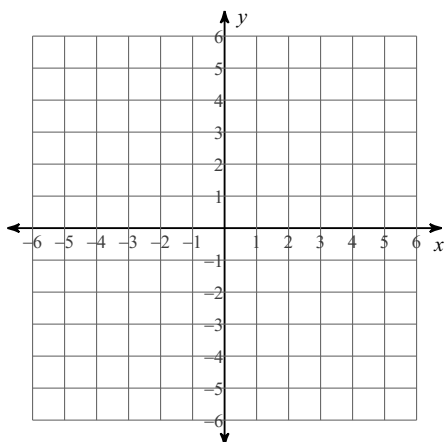
Find the slope of a line perpendicular to each given line.

38) $-18 + 9y = -21x$

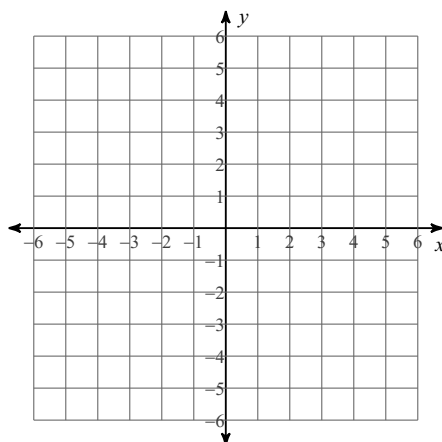
39) $\frac{1}{3}y = -1 + \frac{7}{12}x$

Sketch the graph of each line.

40) $-6 - 3y = -2x$



41) $-3x - 4y = -20$



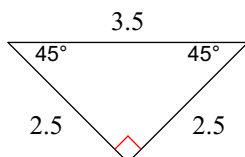
Write the slope-intercept form of the equation of the line through the given point with the given slope.

42) through: $(-3, 3)$, slope = $\frac{2}{3}$

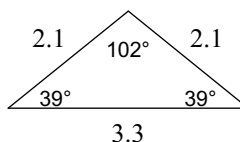
43) through: $(2, -3)$, slope = -2

Classify each triangle by its angles and sides.

44)

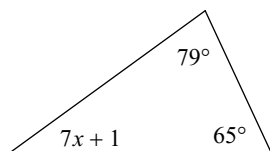


45)

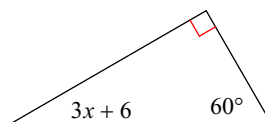


Solve for x .

46)

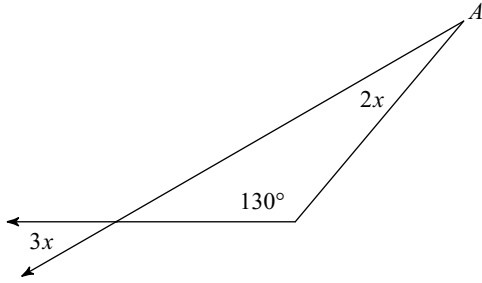


47)

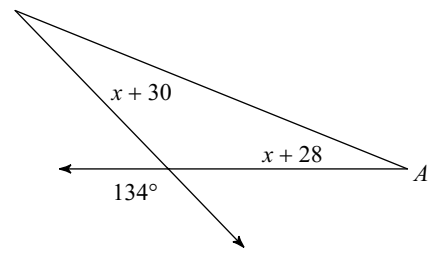


Find the measure of angle A.

48)

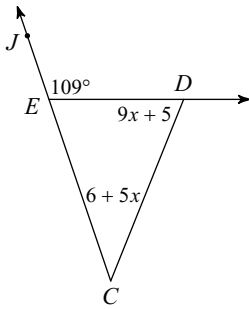


49)

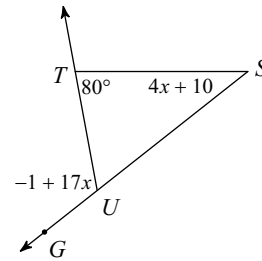


Find the measure of the angle indicated.

50) Find $m\angle EDC$.

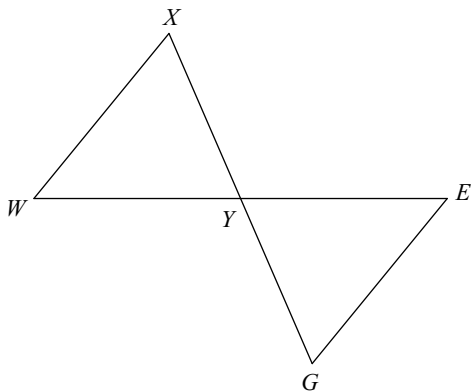


51) Find $m\angle S$.

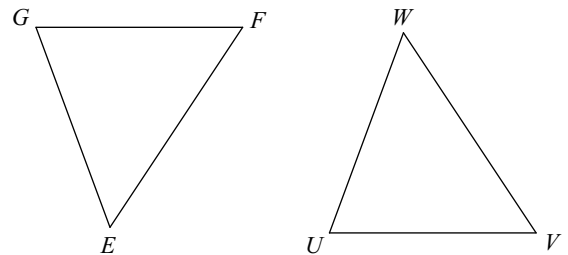


Mark the angles and sides of each pair of triangles to indicate that they are congruent.

52) $\triangle YWX \cong \triangle YEG$

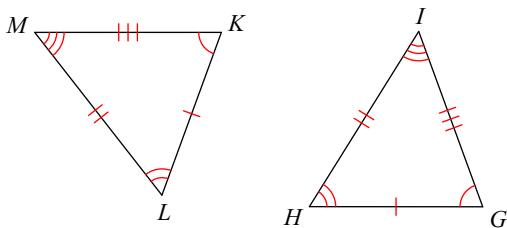


53) $\triangle GFE \cong \triangle UVW$

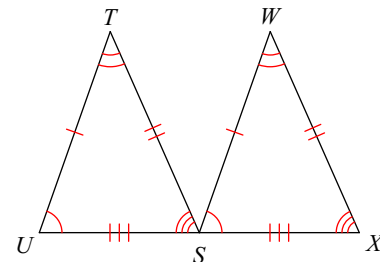


Write a statement that indicates that the triangles in each pair are congruent.

54)

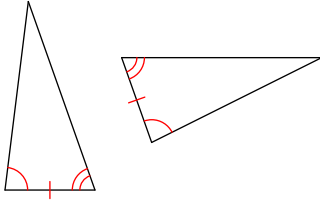


55)

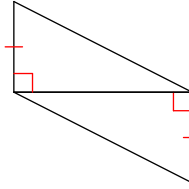


Determine if the two triangles are congruent. If they are, state how you know.

56)

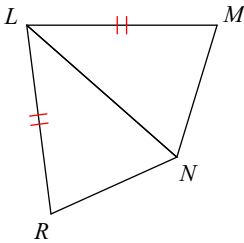


57)

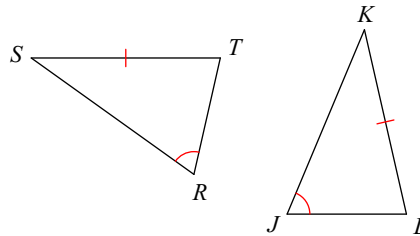


State what additional information is required in order to know that the triangles are congruent for the reason given.

58) SSS

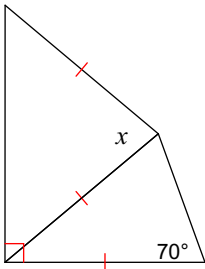


59) AAS

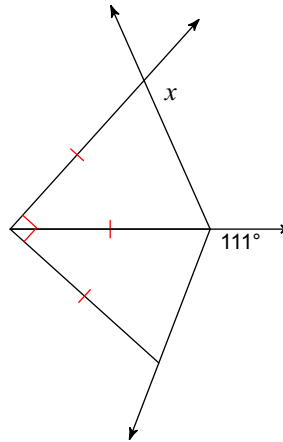


Find the value of x .

60)

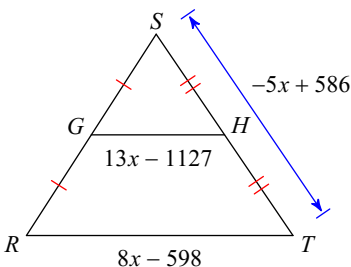


61)

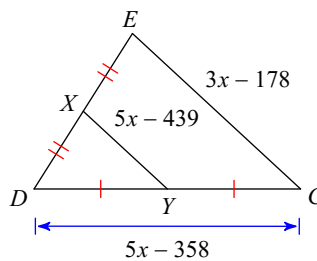


Find the missing length indicated.

62) Find GH

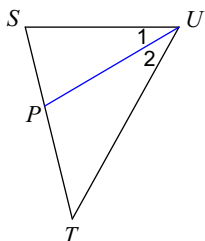


63) Find CE

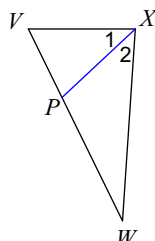


Each figure shows a triangle with one of its angle bisectors.

64) Find x if $m\angle 2 = 6x + 6$ and $m\angle SUT = 15x$.

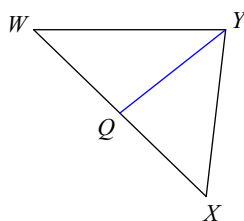


65) $m\angle 2 = 42x + 1$ and $m\angle VXW = 85x + 1$. Find x .

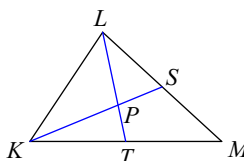


Each figure shows a triangle with one or more of its medians.

66) Find x if $WX = 6x - 1$ and $QX = \frac{5x + 3}{2}$



67) Find x if $LP = 2x + 4$ and $PT = 2x - 1$



State if the three numbers can be the measures of the sides of a triangle.

68) 9, 13, 7

69) 13, 5, 10

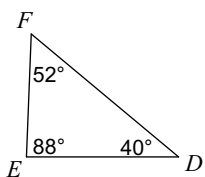
Two sides of a triangle have the following measures. Find the range of possible measures for the third side.

70) 8, 12

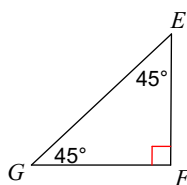
71) 9, 12

Order the sides of each triangle from shortest to longest.

72)

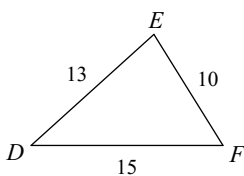


73)

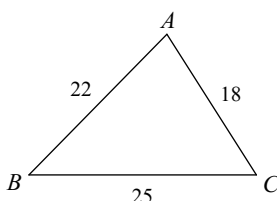


Order the angles in each triangle from smallest to largest.

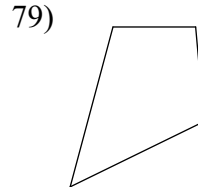
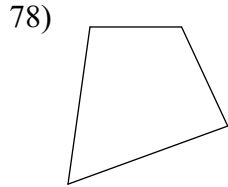
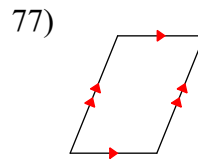
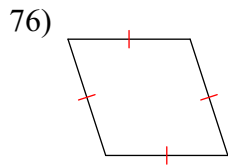
74)



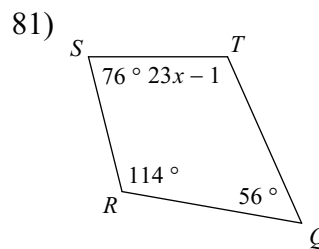
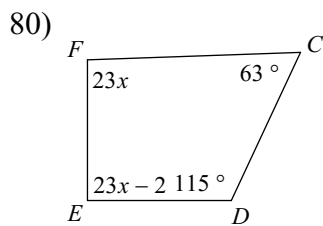
75)



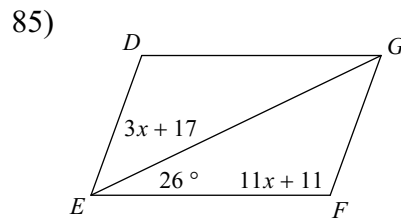
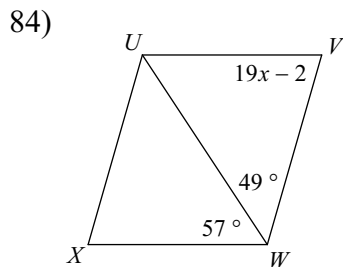
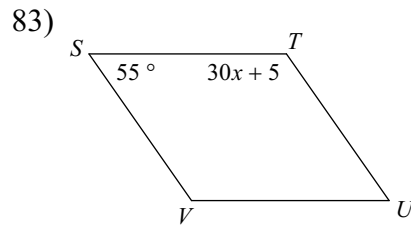
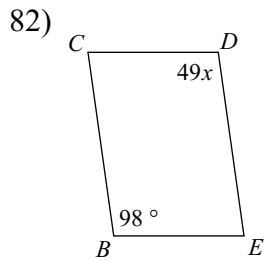
State the most specific name for each figure.



Solve for x .

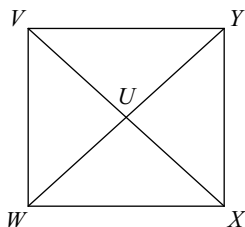


Solve for x . Each figure is a parallelogram.

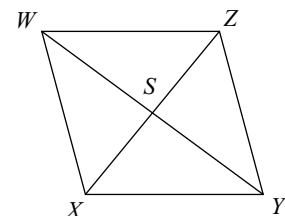


Find the measurement indicated in each parallelogram.

86) $XU = 3x - 7$
 $XV = 3x + 7$
 Find XU

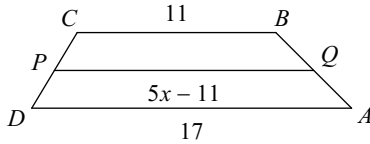


87) $YS = 16x$
 $SW = 17x - 1$
 Find YS

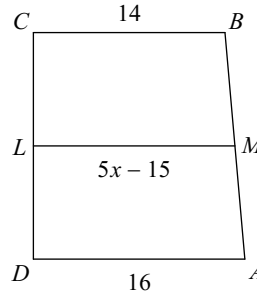


Solve for x . Each figure is a trapezoid.

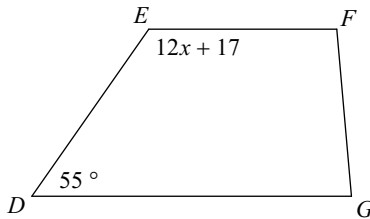
88)



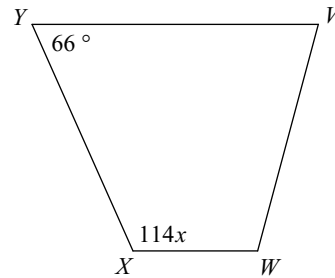
89)



90)

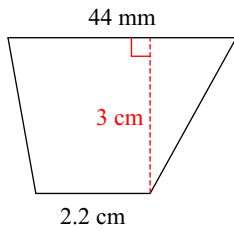


91)

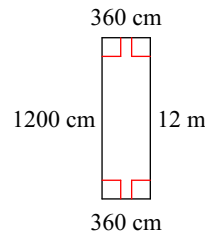


Find the area of each.

92)

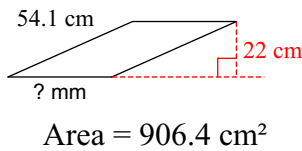


93)

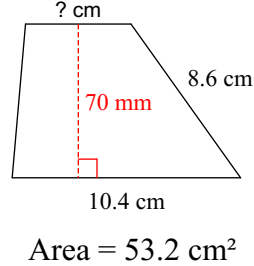


Find the missing measurement. Round your answer to the nearest tenth. Take care to use the correct units.

94)

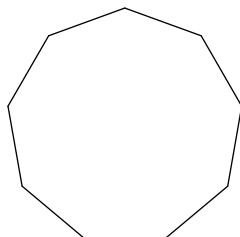


95)

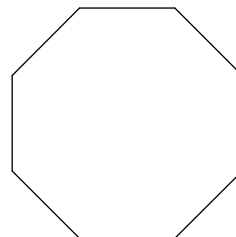


Write the name of each polygon.

96)

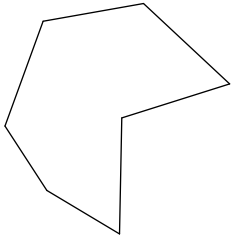


97)

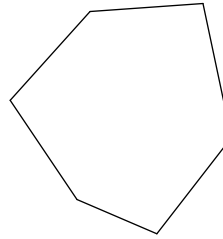


State if each polygon is concave or convex.

98)

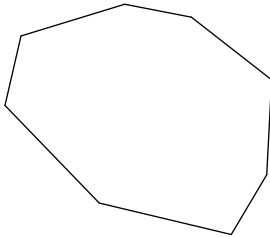


99)

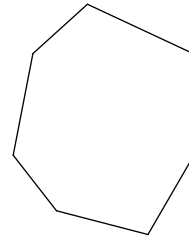


State if each polygon is regular or not.

100)

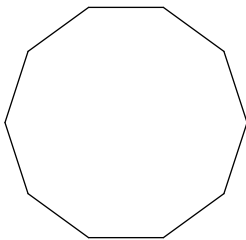


101)



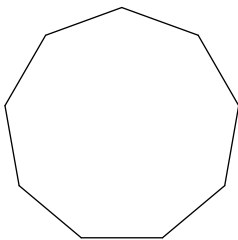
Find the measure of one interior angle in each regular polygon. Round your answer to the nearest tenth if necessary.

102)



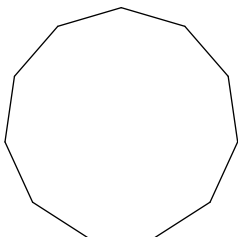
Find the measure of one exterior angle in each regular polygon. Round your answer to the nearest tenth if necessary.

103)



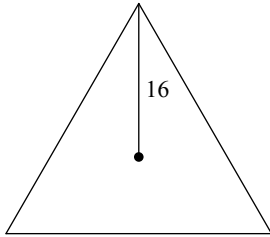
Find the interior angle sum for each polygon. Round your answer to the nearest tenth if necessary.

104)

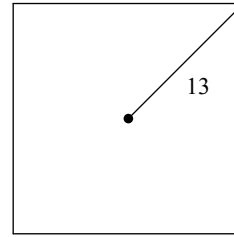


Find the area of each regular polygon. Round your answer to the nearest tenth if necessary.

105)



106)



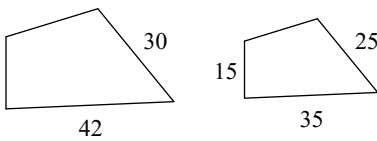
Solve each proportion.

107) $\frac{v + 11}{v + 7} = \frac{5}{2}$

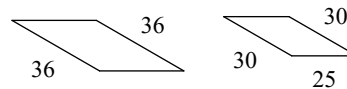
108) $\frac{2}{11} = \frac{b - 6}{b + 6}$

The polygons in each pair are similar. Find the scale factor of the smaller figure to the larger figure.

109)

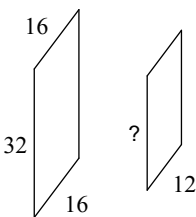


110)

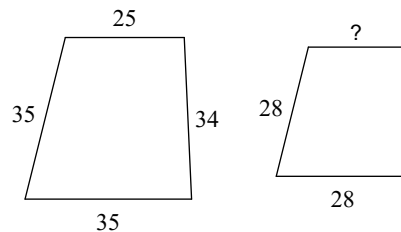


The polygons in each pair are similar. Find the missing side length.

111)

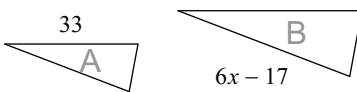


112)



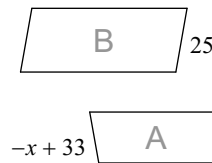
Solve for x . The polygons in each pair are similar.

113)



scale factor from A to B = 3 : 5

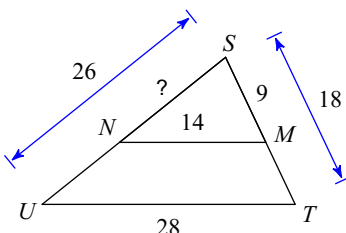
114)



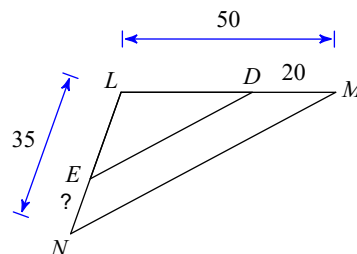
scale factor from A to B = 4 : 5

Find the missing length. The triangles in each pair are similar.

115)

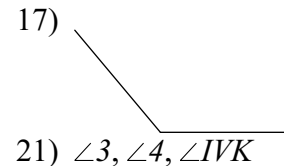
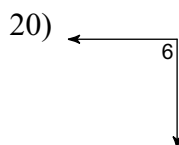
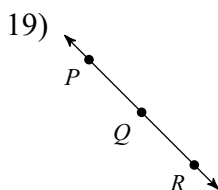
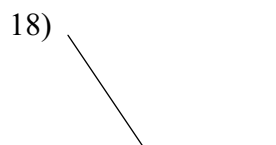


116)



Answers to Geometry - Fall Semester Final Exam Review

- 1) $\{0\}$ 2) $\{8\}$ 3) $24\sqrt{7}$ 4) $39\sqrt{7}$
 5) $3\sqrt{2} - 6\sqrt{7}$ 6) $28\sqrt{2} - 2\sqrt{6} + 3\sqrt{7}$ 7) $18\sqrt{7} - 18\sqrt{21}$
 8) $-216\sqrt{7} - 252\sqrt{6}$ 9) $\frac{6\sqrt{5} + 5\sqrt{30}}{75}$ 10) $\frac{5 + 3\sqrt{5}}{30}$
 11) 10 mm, 0.5 mm, 5% 12) 37 mm, 0.5 mm, 1.4% 13) 5
 14) 7 15) 40° 16) 50°



- 22) $\angle 4, \angle 5, \angle SVQ$
 26) 18

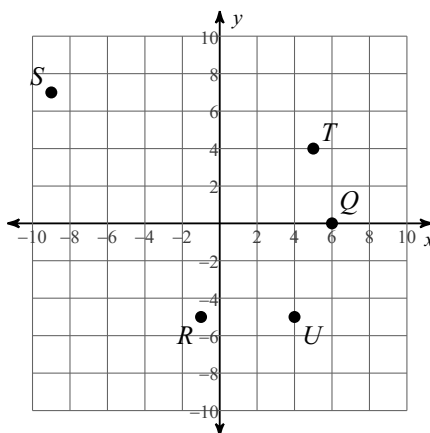
- 23) 26°
 27) $\overline{CD} \perp \overline{BE}$
 $\overline{BE} \perp \overline{FE}$
 $\overline{CE} \cong \overline{BC}$
 $\overline{AB} \cong \overline{FE}$

- 24) 100°
 28) $q \parallel p \parallel r$
 $\overline{BC} \perp r$
 $\overline{BC} \cong \overline{DE}$
 $\angle FED \cong \angle CDE$

- 25) 8
 29) 11

- 30) 6

- 31)



- 32) $(-9.272, -8.25)$

- 33) $(-3.1, 5.45)$

- 34) 13.8

- 35) 5

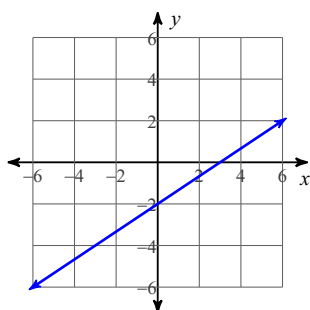
- 36) $-\frac{1}{4}$

- 37) $-\frac{4}{5}$

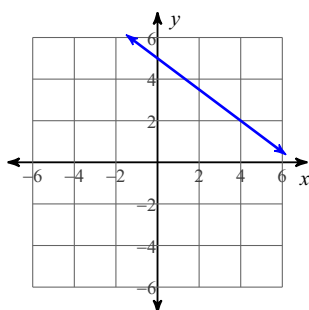
- 38) $\frac{3}{7}$

- 39) $-\frac{4}{7}$

- 40)



- 41)



- 42) $y = \frac{2}{3}x + 5$

- 43) $y = -2x + 1$

- 44) right isosceles

- 45) obtuse isosceles

- 46) 5

- 47) 8

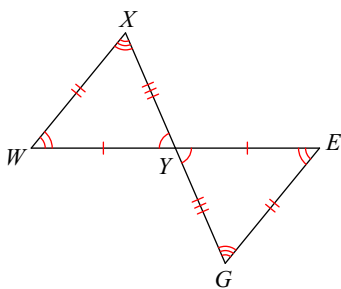
- 48) 20°

- 49) 22°

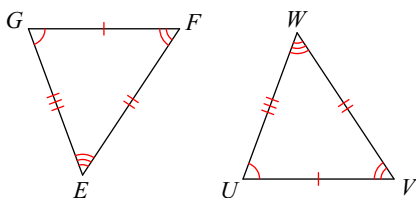
- 50) 68°

- 51) 38°

52)



53)



54) $\triangle KLM \cong \triangle GHI$

58) $\overline{MN} \cong \overline{RN}$

61) 114°

65) 1

69) Yes

73) \overline{FG} and $\overline{EF}; \overline{EG}$

77) parallelogram

81) 5

85) 9

89) 6

93) 43.2 m^2

97) octagon

101) not regular

105) 332.6

109) 5 : 6

113) 12

55) $\triangle UTS \cong \triangle SWX$

59) $\angle S \cong \angle K$ or $\angle T \cong \angle L$

62) 69

66) 4

70) $4 < x < 20$

74) $\angle D, \angle F, \angle E$

78) quadrilateral

82) 2

86) 14

90) 9

94) 412 mm

98) concave

102) 144°

106) 338

110) 5 : 6

114) 13

56) ASA

60) 80°

63) 122

67) 3

71) $3 < x < 21$

75) $\angle B, \angle C, \angle A$

79) quadrilateral

83) 4

87) 16

91) 1

95) 4.8 cm

99) convex

103) 40°

107) $\{-4.33\}$

111) 24

115) 13

57) LL

64) 4

68) Yes

72) $\overline{EF}, \overline{DE}, \overline{DF}$

76) rhombus

80) 4

84) 4

88) 5

92) 9.9 cm^2

96) nonagon

100) not regular

104) 1620°

108) $\{8.67\}$

112) 20

116) 14