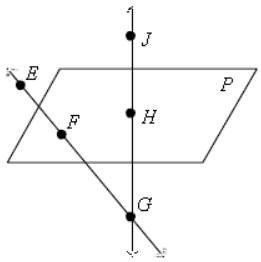
1. Which set of three points is collinear?



E, F, G
or
J, H, G

2. If $\angle 1$ and $\angle 2$ are vertical angles and $m\angle 1 = 2x + 16$ and $m\angle 2 = 5x - 35$, what is $m\angle 1$?

$2x+16=5x-35$ $x=17$ $2(17)+16=50$

3. Find the distance between the points $(-5, -1)$ and $(1, -2)$.

$d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$\sqrt{(1-5)^2+(-2+1)^2}$

$\sqrt{(6)^2+(-1)^2}$

$\sqrt{36+1}$

$\sqrt{37}$

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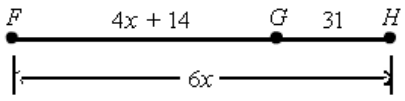
4. G is between F and H. $FH = 6x$, $FG = 4x + 14$, and $GH = 31$. Find FH.



$4x+14+31=6x$

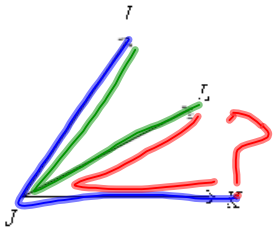
$4x+45=6x$

$45=2x$

$x=22.5$

5. $m\angle IJK = 56°$ and $m\angle IJL = 29°$. Find $m\angle LJK$.

$56-29=27$



6. Find the measure of the supplement of $\angle R$, where $m\angle R = (7z + 10)°$

$180-(7z+10)$

$170-7z$

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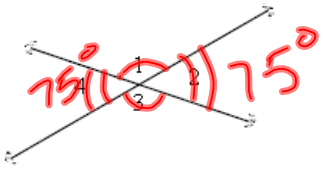
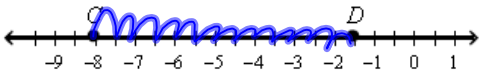
7. In the diagram, $\angle 1$ and $\angle 3$ are vertical angles, and $\angle 2$ and $\angle 4$ are vertical angles. If $m\angle 2 = 75°$, find $m\angle 4$.



75° (∠) 75°

8. Find the length of $\overline{CD}$.



13 ÷ 2 = 6.5

9. Identify the hypothesis and conclusion of the conditional statement.

If it is raining then it is cloudy.

HYP CON.

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10. M is the midpoint of $\overline{AN}$, A has coordinates (5, 7), and M has coordinates (–1, 2). Find the coordinates of N.

x, y

2: $-1 = \frac{5+x}{2}$ ·2 $2 \cdot 2 = \frac{7+y}{2}$ ·2

$-2 = 5 + x$

$-5 \quad -5$

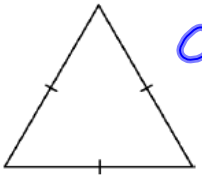
$-7 = x$ (−7, −3)

$4 = 7 + y$

$-7 \quad -7$

$-3 = y$

11. Classify the triangle according to its sides and angles.



acute equalateral

12. Write the equation $2x - 4y = -12$ in slope-intercept form, and then find the slope and y-intercept.

$-4y = -2x - 12$

$-4 \quad -4$

$y = +2x + 3$

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13. Graph the line with the equation $y = 5x - 3$.

14. Write the converse of the statement, "If a dog is a bloodhound, then it has floppy ears."

If it has floppy ears, then the dog is a bloodhound.

15. Write the inverse of the statement, "If a figure is a square, then it has four sides."

If a figure is not a square, then it does not have four sides

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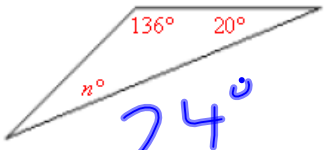
16. Write the contrapositive of the statement, "If a state's capital is Denver, then the state is Colorado."

If the state is not Colorado then the state capital is not Denver.

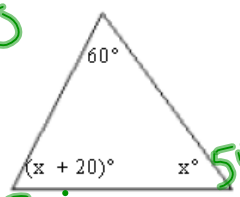
17. Find n in the obtuse triangle.



24°

18. Find the angle measures in the scalene triangle.

50+20 = 70



50

70

60+x+20+x=180

2x+80=180

2x=100

x=50

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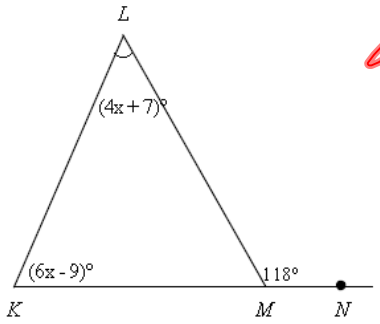
19. One of the acute angles in a right triangle has a measure of $16.6°$. What is the measure of the other acute angle?

20. Find $m\angle K$.



$90+16.6+x=180$

$106.6+x=186$

$x=73.4$

$4x+7+6x-9=118$

$10x-2=118$

$10x=120$

$x=12$

$6(12)-9$

$72-9$

$m\angle K=63$

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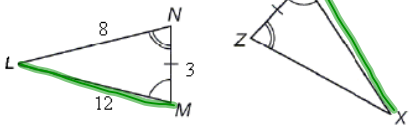
21. Determine the slope of the line containing points (6, 9) and (4, 3).

22. What is the measure of $\overline{XY}$?



$\frac{3-9}{4-6}=\frac{-6}{-2}=3$

12

23. Use the Law of Syllogism to draw a conclusion from the given information.

Given: If two lines are perpendicular, then they form right angles. If two lines meet at a $90°$ angle, then they are perpendicular. Two lines meet at a $90°$ angle.

If Two line meet at a 90° angle then they form a right angle

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24. Determine if the conjecture is valid by the Law of Detachment.

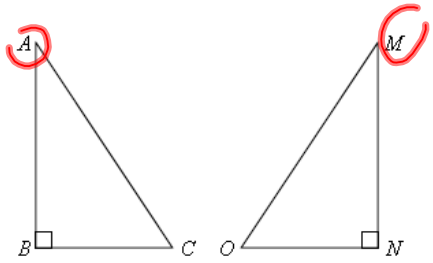
Given: If Tommy made enchiladas tonight, then Tommy must have an oven. Tommy has an oven.

Conjecture: Tommy made enchiladas tonight.

True

25. **Given**: $\Delta ABC \cong \Delta MNO$

Identify all pairs of congruent corresponding parts.



$\angle A \cong \angle M$

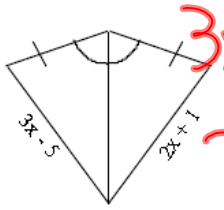
$\angle B \cong \angle N$

$\angle C \cong \angle O$

$\overline{AB} \cong \overline{MN}$

$\overline{BC} \cong \overline{NO}$ $\overline{AC} \cong \overline{MO}$

26. Find the value of x.



$3x - 5 = 2x + 1$

$x = 6$

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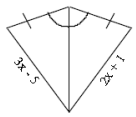
26. Find the value of x.

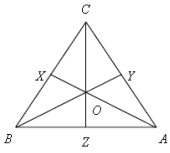


$3x - 5 = 2x + 1$

$-2x + 5 \quad -2x + 5$

$x = 6$

27. In ΔABC, $BY = 16.5$ and $CO = 15$. $\overline{AX}$ $\overline{BY}$, and $\overline{CZ}$ are medians. Find BO.



$16.5 \div 3 = 5.5 \times 2 = 11$

28. Where is the orthocenter of a right triangle located? At the right ang

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29. The equations of four lines are given. Identify the parallel lines..

Line 1: $y = -8x + 5$

Line 2: $x + \frac{1}{3}y = -8$

Line 3: $y = -3x + 6$

Line 4: $y - 2 = -\frac{1}{8}(x - 8)$

$x + \frac{1}{3}y = -8$

$-x \quad -x$

$\frac{1}{3}y = -x - 8$

$y = -3x - 24$

30. The equations of four lines are given. Identify the perpendicular lines.

Line 1: $y = -1$

Line 2: $y = \frac{1}{4}x - 2$

Line 3: $x = 1$

Line 4: $y - 1 = -4(x - 4)$

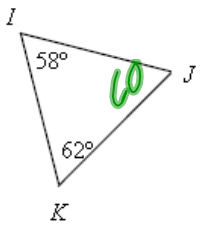
$-4(x-4)$

$-4x + 16 = y - 1$

$+1 \quad +1$

$-4x + 17 = y$

31. Write the sides of ΔIJK in order from shortest to longest.



60

IJ IK JK

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32. Tell whether the set of side lengths 5, 1, and 5 could form a triangle.

6 7 5 YES

33. The lengths of two sides of a triangle are 3 inches and 8 inches. Find the range of possible lengths for the third side, s.

$5 < x < 11$

34. On the median of a triangle, the distance from the vertex to the centroid is 8.2. What is the length of the median?

$8.2 \div 2 = 4.1 \times 3 = 12.3$

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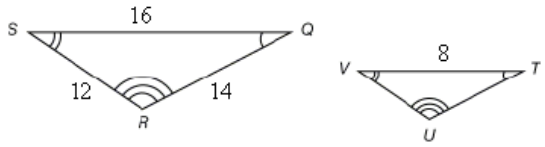
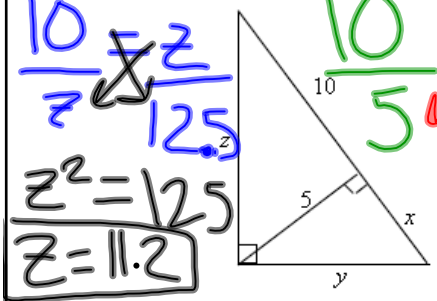
35. Given the following similar triangles, find the length of $\overline{UV}$.



$UV = 6$

36. Find x, y, and z. Express your answers in radical form.



$\frac{10}{z} = \frac{z}{12.5}$

$z^2 = 125$

$z = 11.2$

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

$10x = 25$

$\frac{10x}{10} = \frac{25}{10}$

$x = 2.5$

$\frac{2.5}{y} = \frac{y}{12.5}$

$y^2 = 31.25$

$y = 5.6$

37. Find the geometric mean of 4 and 16.

$\frac{4}{x} = \frac{x}{16}$

$x^2 = 64$

$x = 8$

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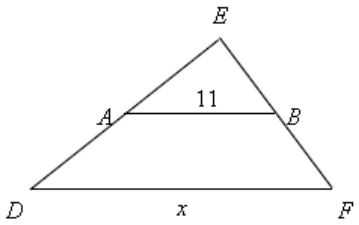
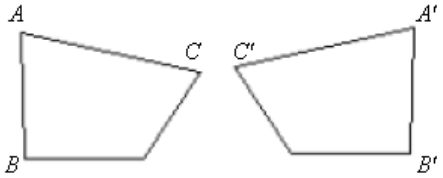
38. In the diagram, $\overline{AB}$ is a midsegment of $\triangle DEF$. Find the value of x.



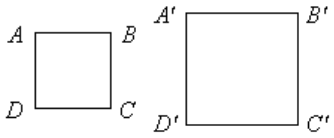
$11 \cdot 2 = 22$

39. Identify the following as a translation, rotation, reflection, or none of these.



reflection

40. Identify the following as a translation, rotation, reflection, or none of these.



none of these

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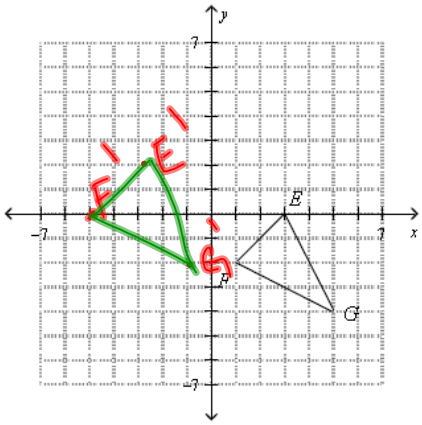
41. Find the coordinates for the image of $\triangle EFG$ after the translation $(x, y) \rightarrow (x-6, y+2)$. Draw the image.



42. Draw the image of a triangle with vertices (2, 2), (3, 4), and (5, 2). Then reflect the triangle across the y-axis.

43. $\triangle DEF$ has vertices $D(-1,-8)$, $E(-7,-5)$, and $F(-8,-7)$. What would be the coordinates of E' if $\triangle DEF$ were rotated 180° about the origin?

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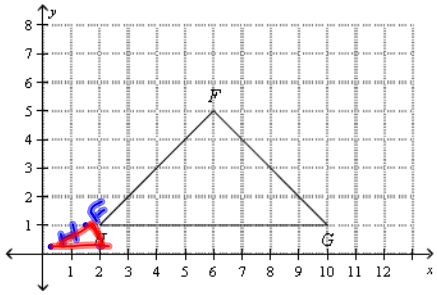
44. Give the coordinates of the image of the triangle after a dilation centered at the origin and with a scale factor of 0.2.



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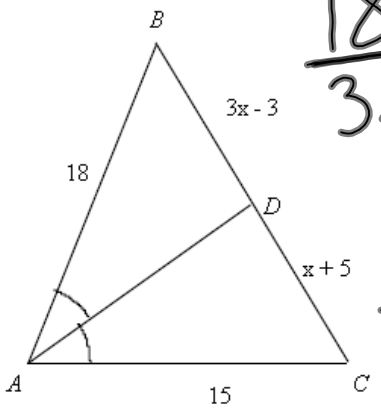
45. Find BD.



$\frac{18}{3x-3} = \frac{15}{x+5}$

$18x + 90 = 45x - 45$

$-18x \quad -18x$

$90 = 27x - 45$

$+45 \quad +45$

$\frac{135}{27} = \frac{27x}{27}$

$x = 5$

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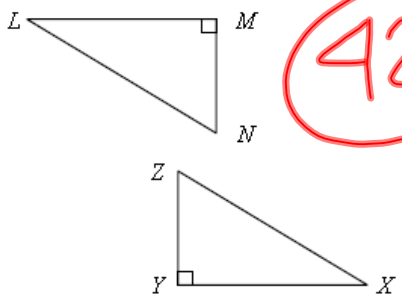
46. Suppose $\overline{LM} \cong \overline{XY}$ and $\angle L \cong \angle X$. If $m\angle N = 42°$, what is $m\angle Z$?



42

47. Solve the proportion $\frac{7}{22} = \frac{9}{4w}$. Express your answer as a fraction.

$28w = 198$

$\frac{28w}{28} = \frac{198}{28}$

$w = \frac{99}{14}$

48. Triangle ABC is isosceles and its vertex angle is at B. If $m\angle C = 58°$, find $m\angle B$.

$180 - 58 - 58 = 64$

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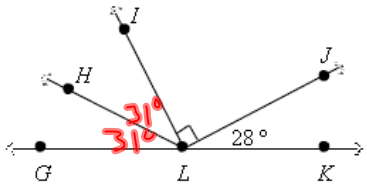
49. A photograph measure 4 inches by 5 inches. If it is enlarged by 200%, what are its new measurements?

8 x 10

50. $\overrightarrow{LH}$ bisects $\angle GLI$. What is the measure of $\angle KLH$?



180 - 90 - 28 = 62

$\frac{62}{2} = 31$

31 + 90 + 28 = 149

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