Geometry

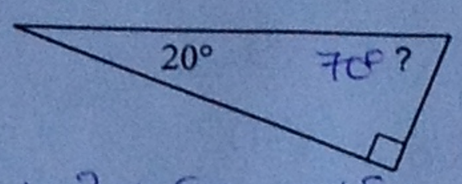
Name Key

Angles in Triangles - Section 4-2

Date _____ Period ____

Find the measure of each angle indicated.

1)

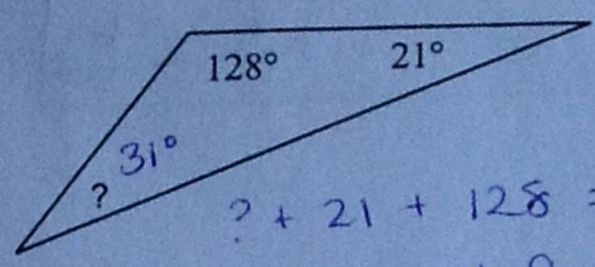


$20 + ? + 90 = 180$

$? + 110 = 180$

$\boxed{? = 70°}$

2)



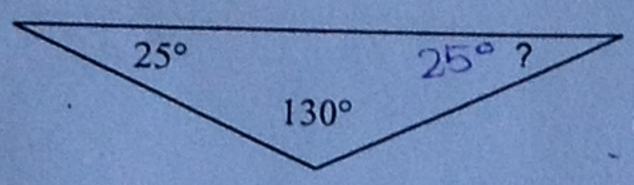
$? + 21 + 128 = 180$

$? + 149 = 180$

$\boxed{? = 31°}$

$180 - 149 = 31$

3)



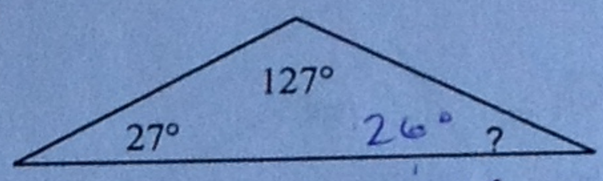
$? + 25 + 130 = 180$

$? + 155 = 180$

$\boxed{? = 25°}$

$180 - 155 = 25$

4)



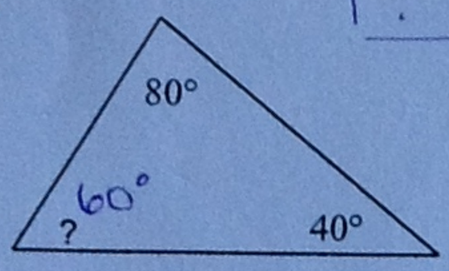
$? + 27 + 127° = 180$

$? + 154 = 180$

$\boxed{? = 26°}$

$180 - 154 = 26$

5)

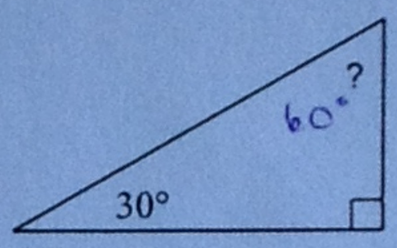


$? + 40 + 80 = 180$

$? + 120 = 150$

$\boxed{? = 60°}$

6)



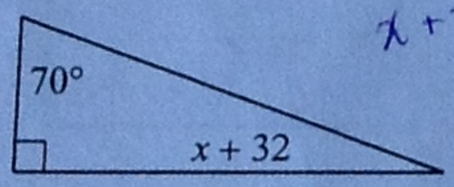
$? + 30 + \cancel{60}\ 90 = 180$

$? + 120 = 180$

$\boxed{? = 60}$

Solve for *x*.

7)



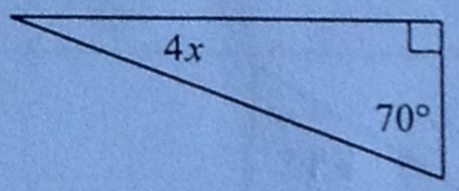
$x + 32 + 70 = 180$

$x + 102 = 180$

$-102 \quad -102$

$\boxed{x = 78}$

8)



$4x + 70 + 90 = 180$

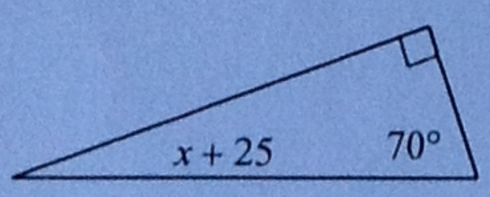
$4x + 160 = 180$

$-160 \quad -160$

$\frac{4x}{4} = \frac{20}{4}$

$\boxed{x = 5}$

9)



$x + 25 + 70 + 90 = 180$

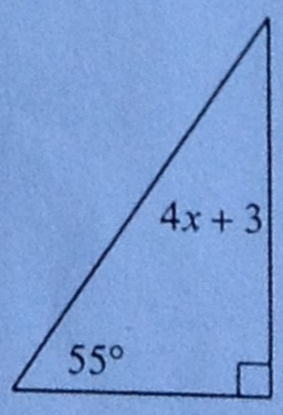
$x + 25 + 160 = 180$

$x + 185 = 180$

$-185 \quad -185$

$\boxed{x = -5}$

10)



$4x + 3 + 55 + 90 = 180$

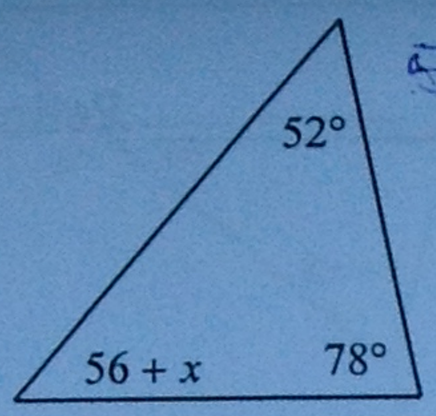
$4x + 148 = 180$

$-148 \quad -148$

$\frac{4x}{4} = \frac{32}{4}$

$\boxed{x = 8}$

11)



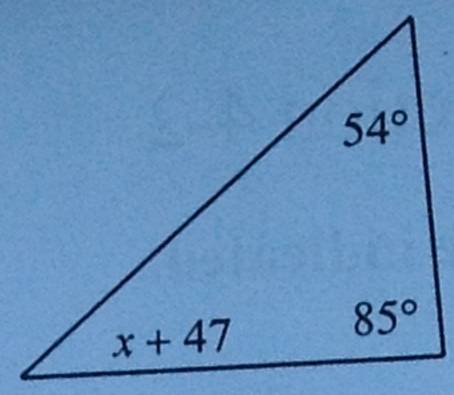
$56 + x + 52 + 78 = 180$

$x + 186 = 180$

$-186 \quad -186$

$\boxed{x = -6}$

12)



$x + 47 + 54 + 85 = 180$

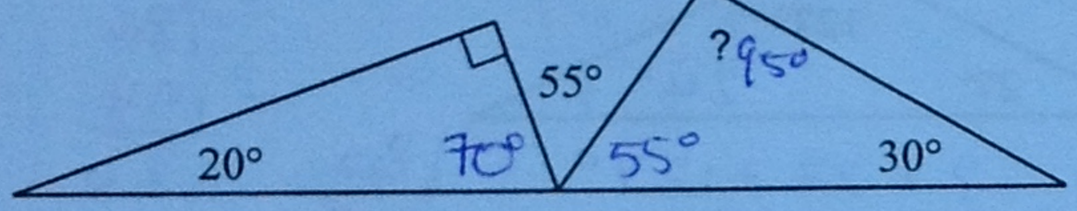
$x + 186 = 180$

$-186 \quad -186$

$\boxed{x = -6}$

Find the measure of each missing angle. (Not just the "?" angle.)

13)



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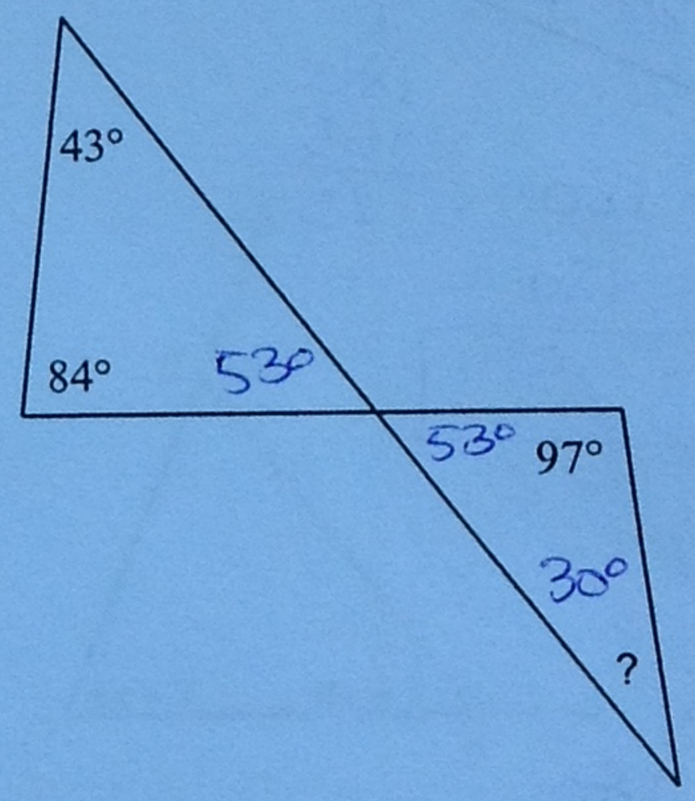

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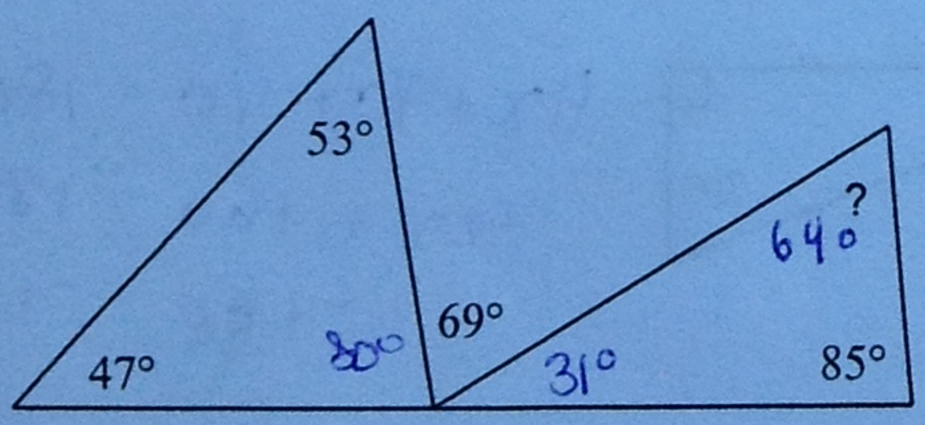

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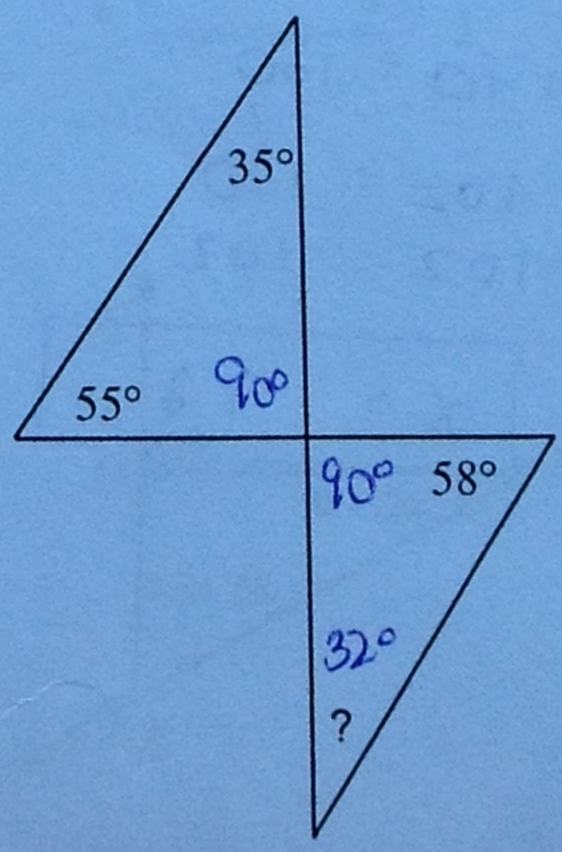

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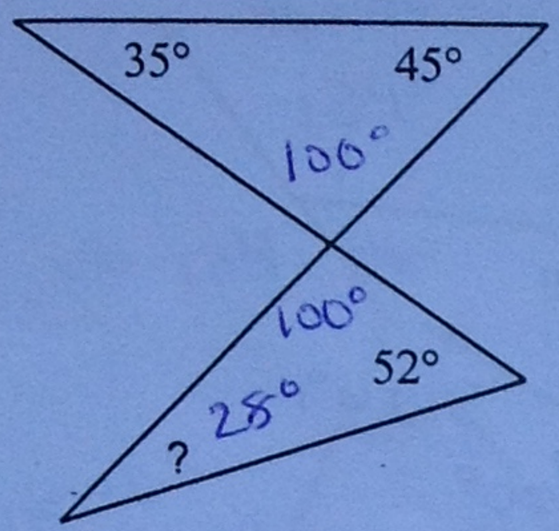

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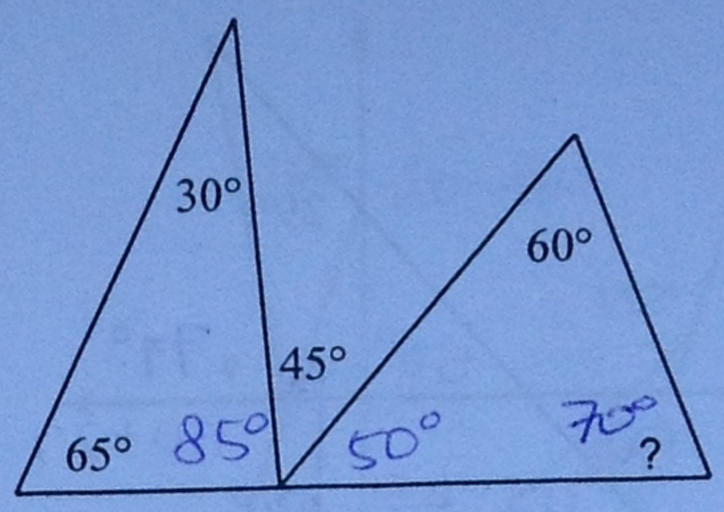

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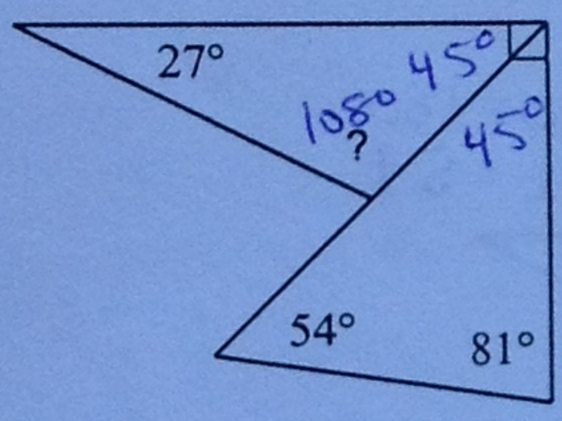

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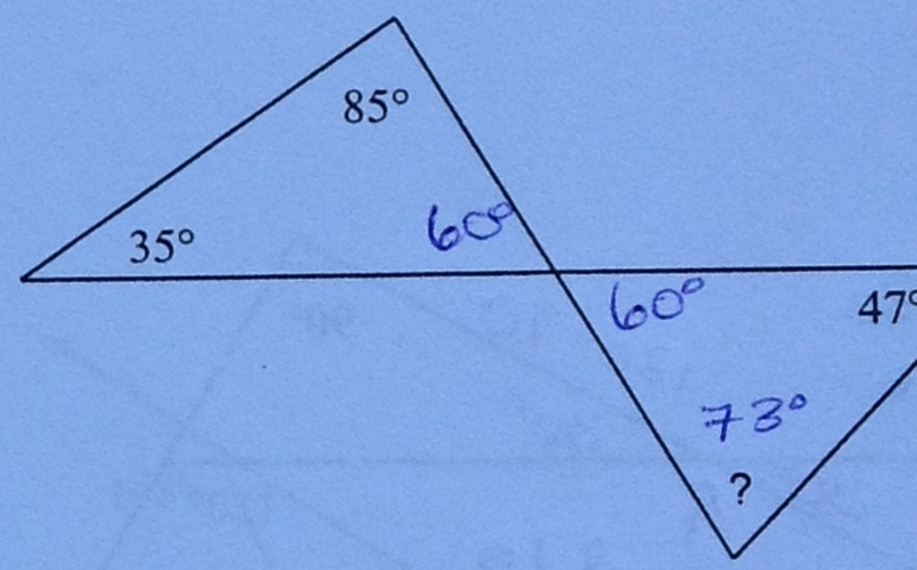

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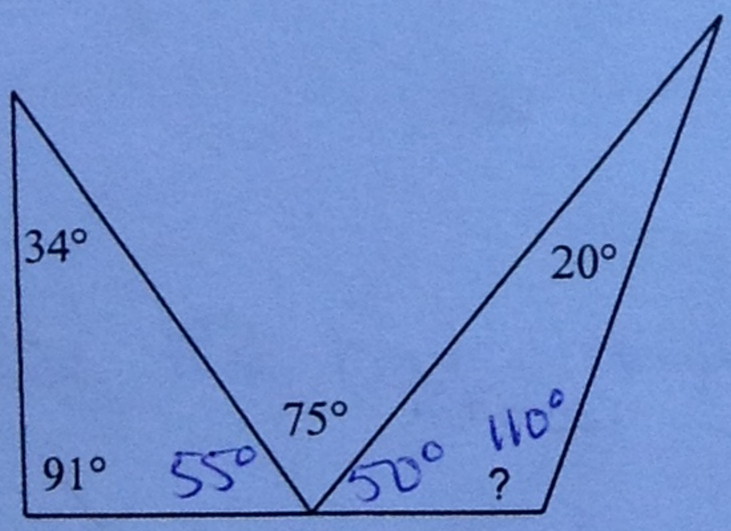

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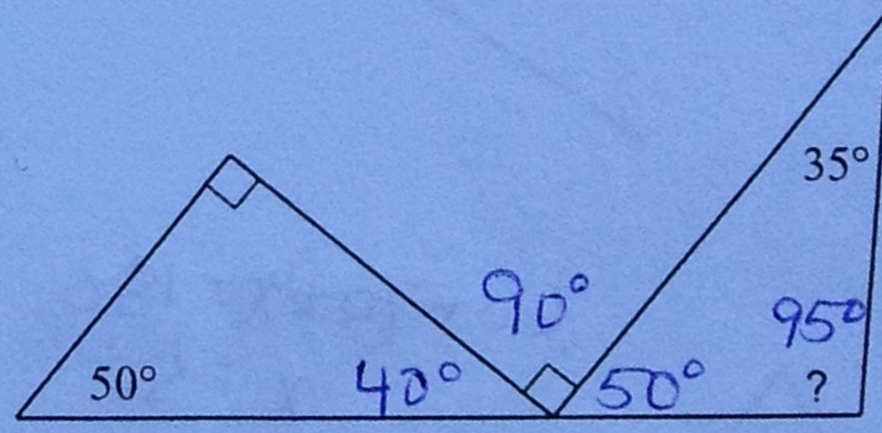

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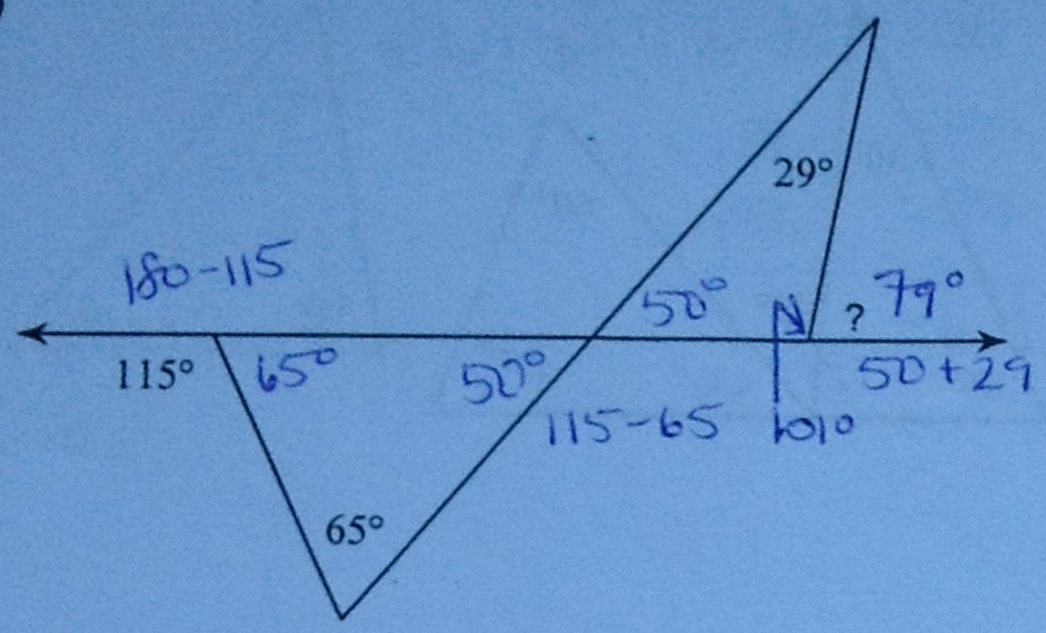

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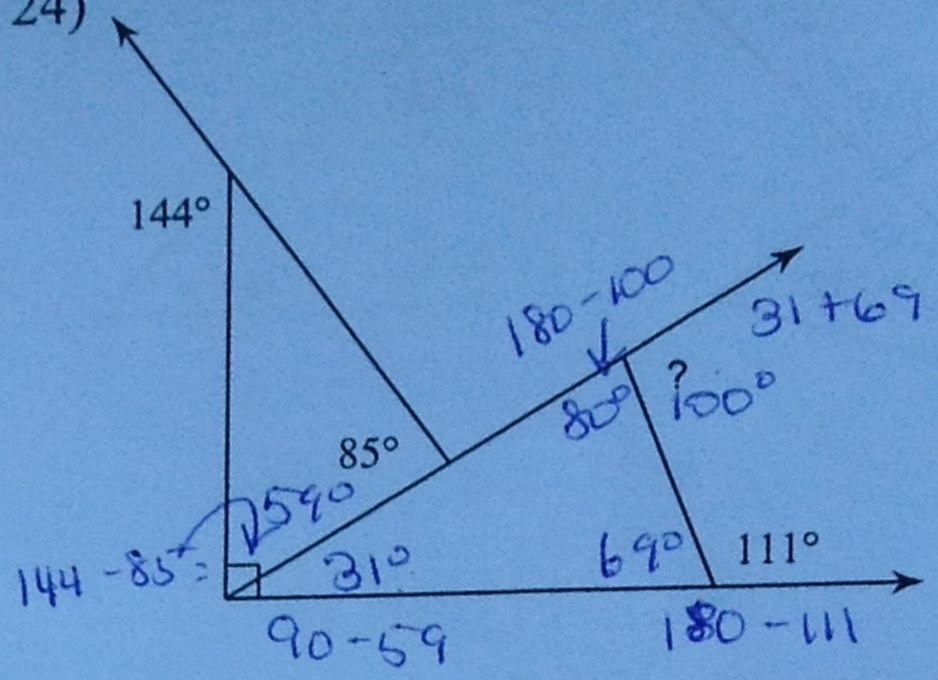
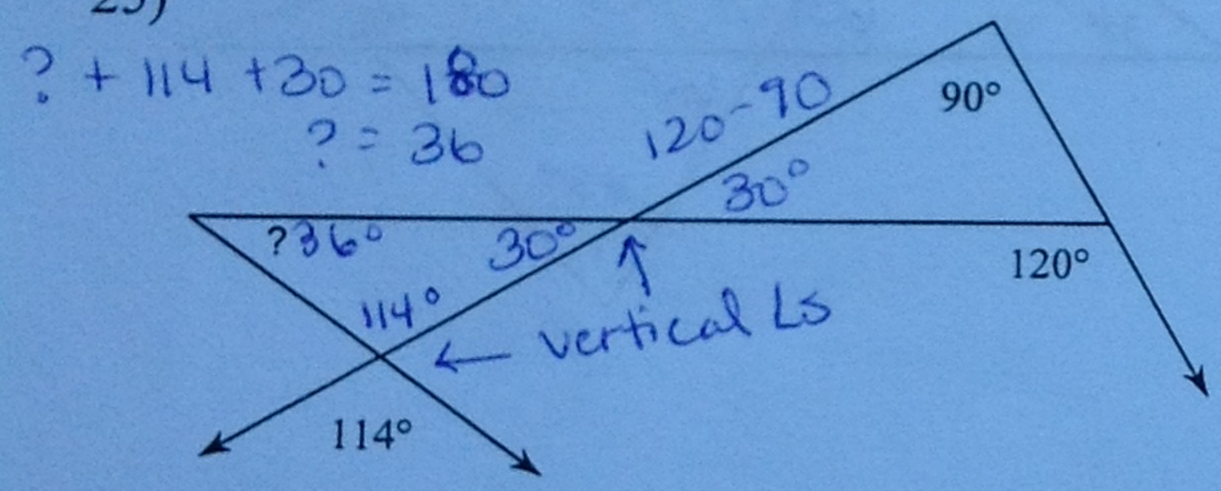


25)

? + 114 + 30 = 180
? = 36



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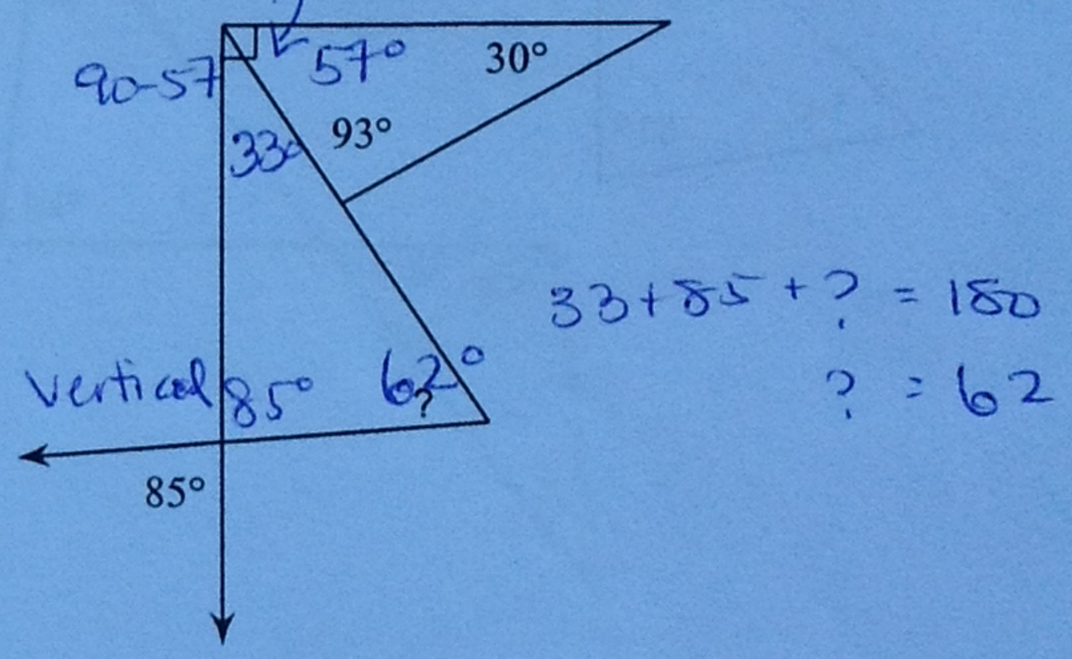
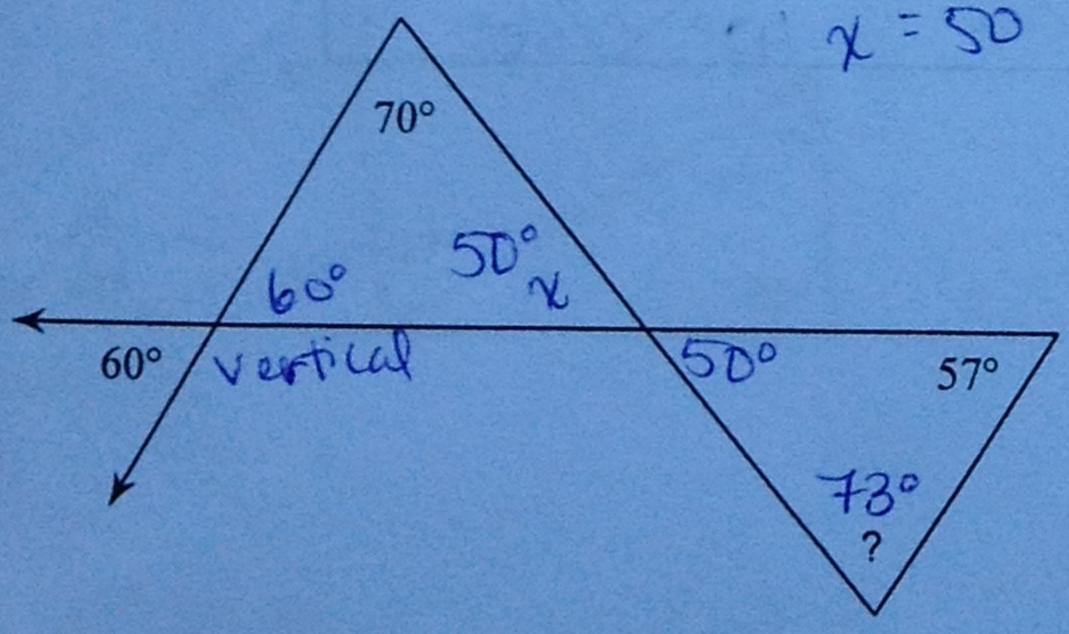
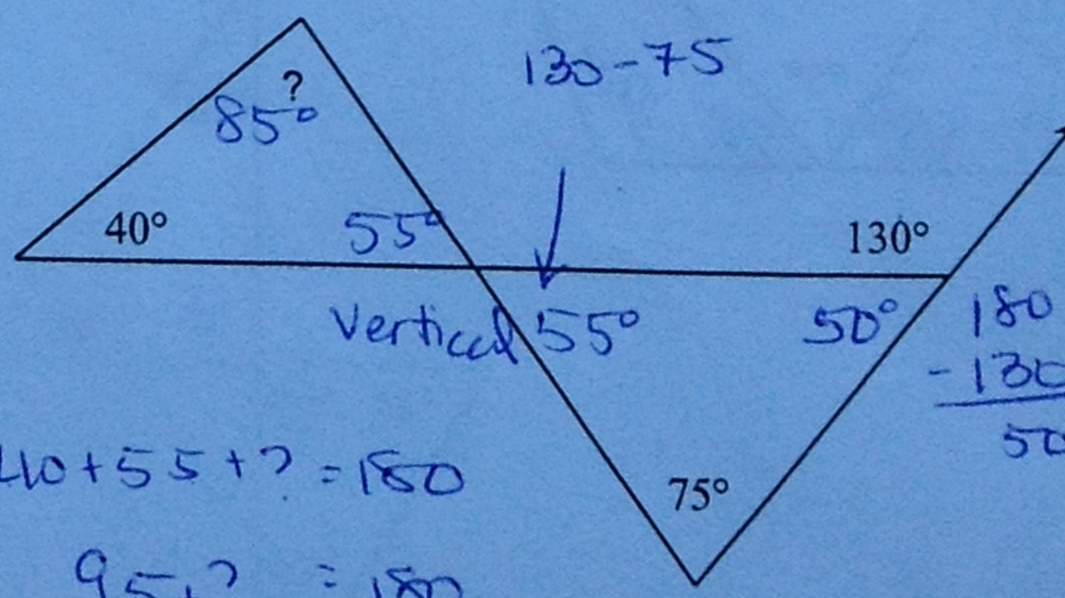


27)

60 + 70 + x = 180
x = 50



28)



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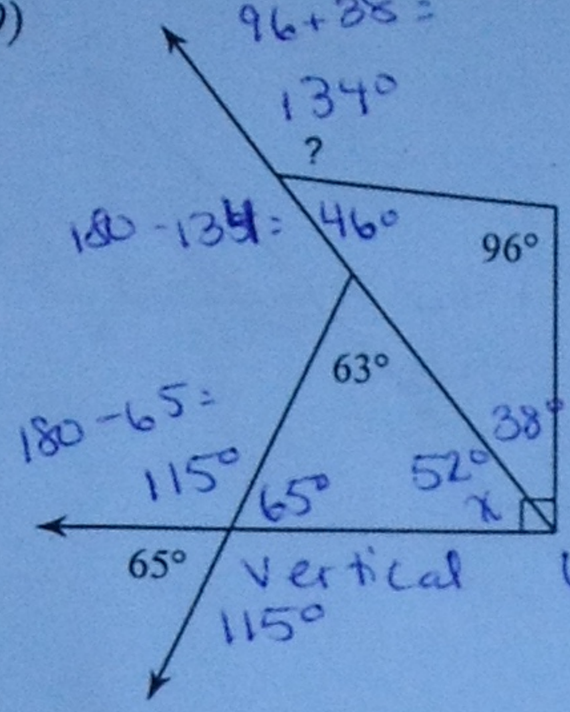


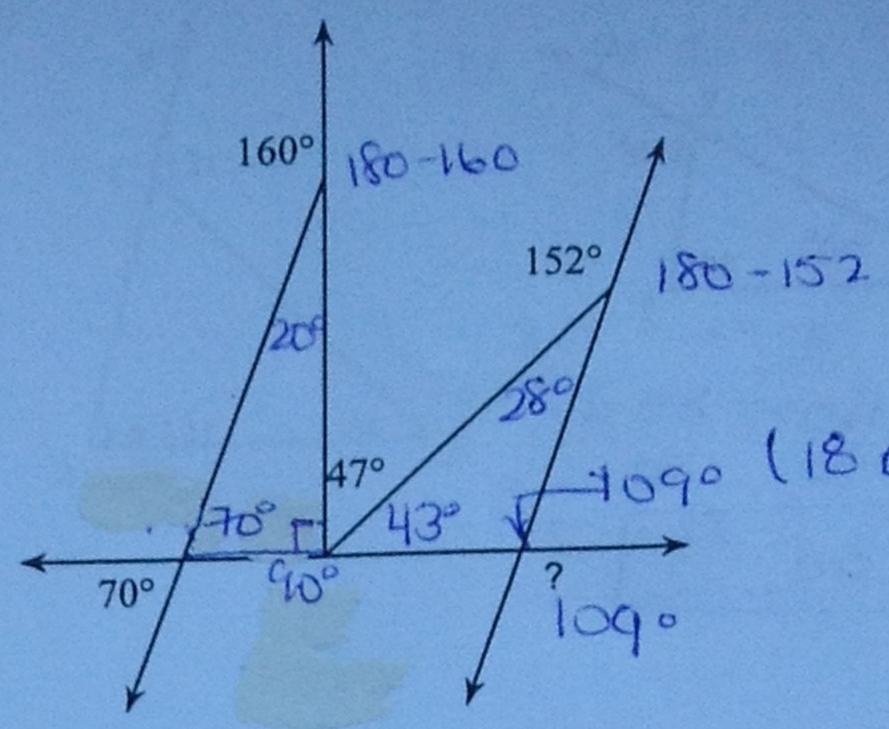
90-52=38

65+63+x=180

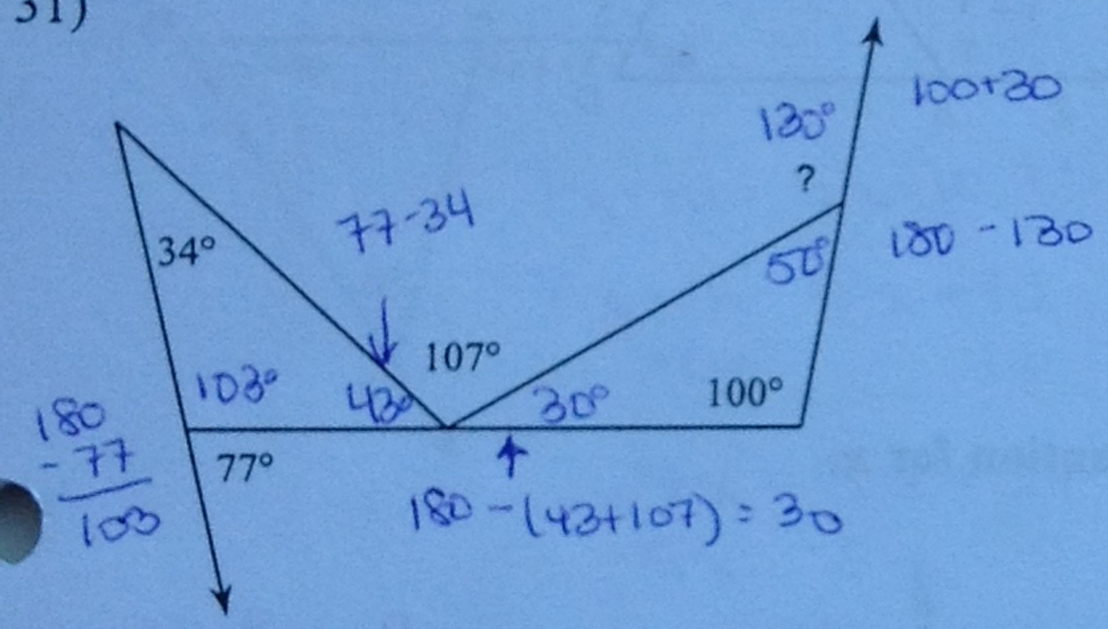
128+x=180
-128 -128

x=52

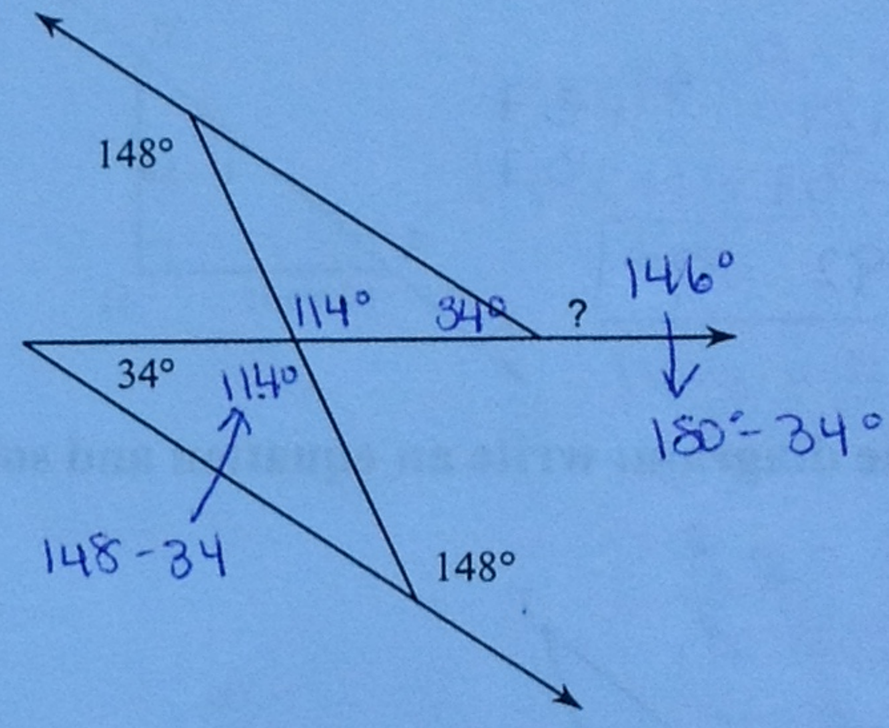
30)



31)

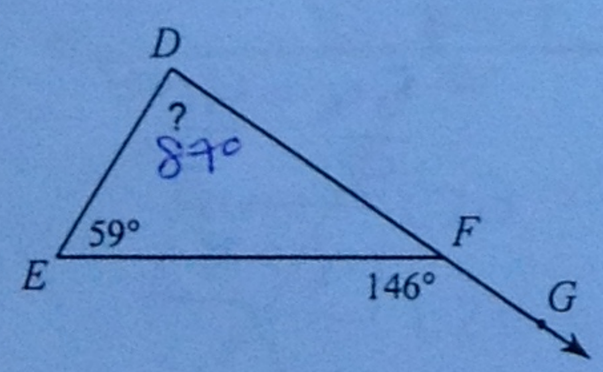


32)



Use the Exterior Angle Theorem to solve for "?"

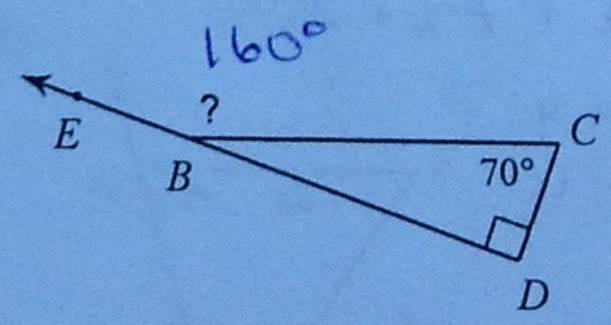
33)



146=59+?
-59 -59

87=?

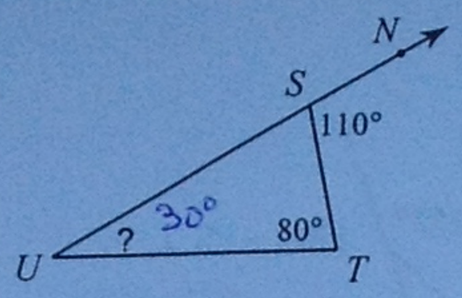
34)



?=70+90

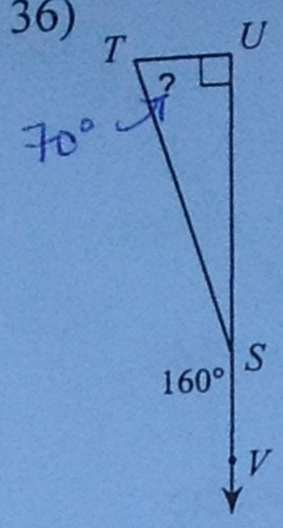
?=160°

35)



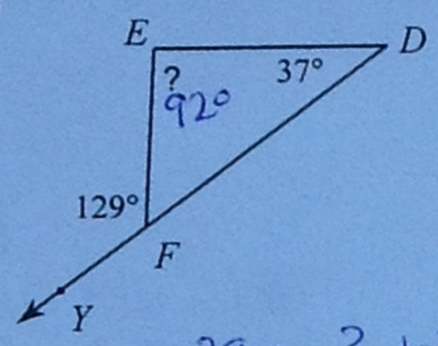
$110 = 80 + ?$
$-80 \quad -80$
$30 = ?$

36)



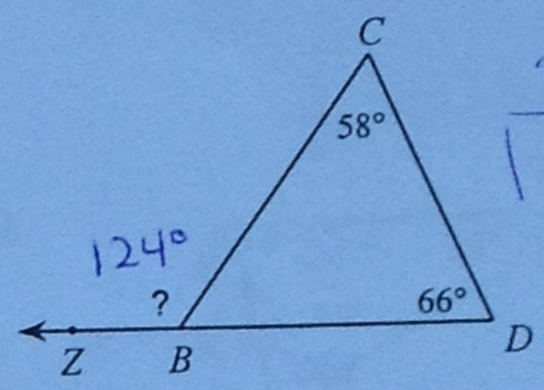
$160 = ? + 90$
$-90 \quad -90$
$70 = ?$

37)



$129 = ? + 37$
$-37 \quad -37$
$92 = ?$

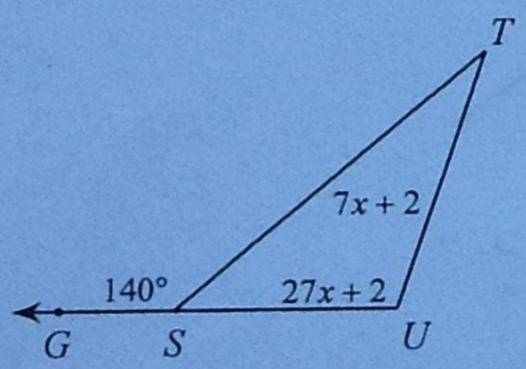
38)



$? = 58 + 66$
$? = 124°$

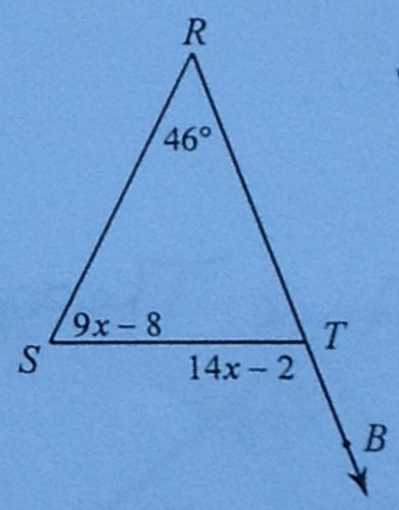
Based on the diagram: write an equation and solve the equation for *x*.

39)



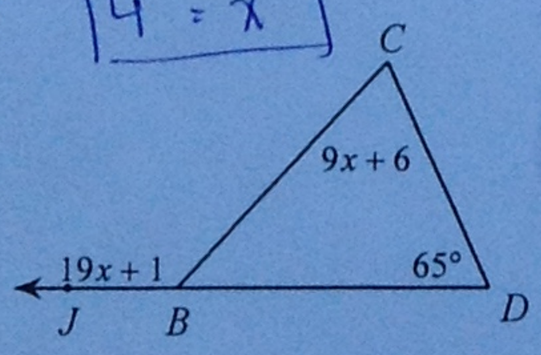
$140 = 27x + 2 + 7x + 2$
$140 = 34x + 4$
$-4 \quad -4$
$\frac{136}{34} = \frac{34x}{34}$
$4 = x$

40)



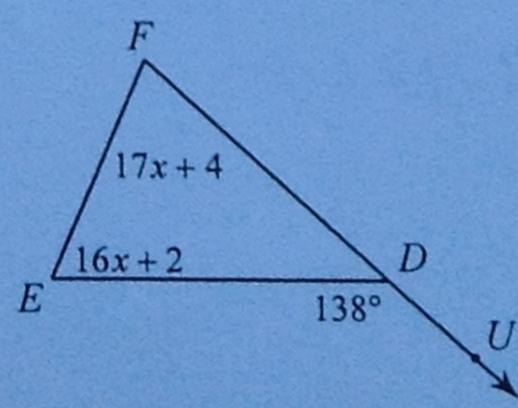
$14x - 2 = 9x - 8 + 46$
$14x - 2 = 9x + 38$
$+2 \quad +2$
$14x = 9x + 40$
$-9x \quad -9x$
$\frac{5x}{5} = \frac{40}{5}$
$x = 8$

41)



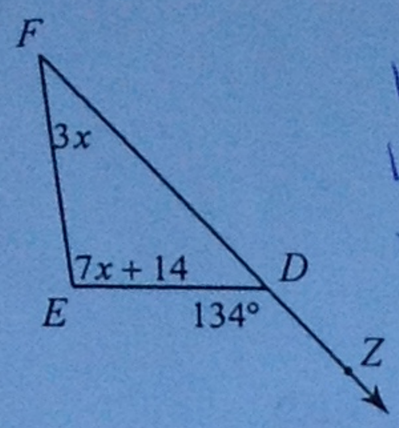
$19x + 1 = 9x + 6 + 65$
$19x + 1 = 9x + 71$
$-1 \quad -1$
$19x = 9x + 70$
$-9x \quad -9x$
$\frac{10x}{10} = \frac{70}{10}$
$x = 7$

42)



$138 = 16x + 2 + 17x + 4$
$138 = 33x + 6$
$-6 \quad -6$
$\frac{132}{33} = \frac{33x}{33}$
$4 = x$

43)



$134 = 3x + 7x + 14$

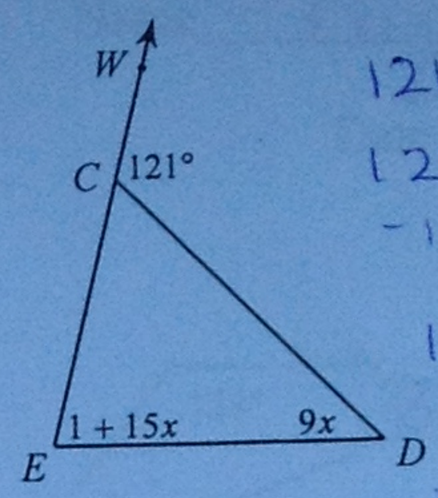
$134 = 10x + 14$

$-14 \quad -14$

$\frac{120}{10} = \frac{10x}{10}$

$12 = x$

44)



$121 = 1 + 15x + 9x$

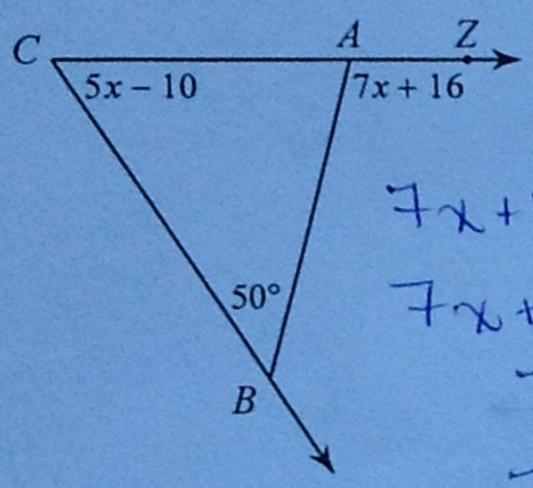
$121 = 1 + 24x$

$-1 \quad -1$

$\frac{120}{24} = \frac{24x}{24}$

$5 = x$

45)



$7x + 16 = 5x - 10 + 50$

$7x + 16 = 5x + 40$

$-16 \quad -16$

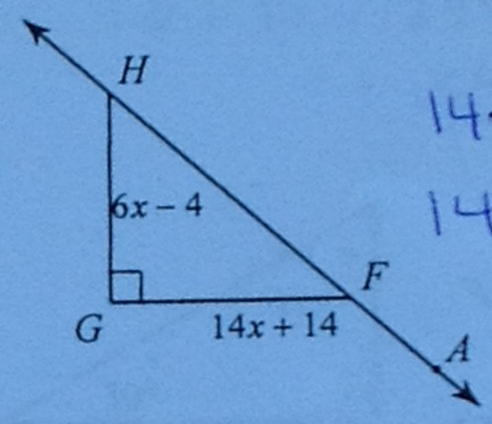
$7x = 5x + 24$

$-5x \quad -5x$

$\frac{2x}{2} = \frac{24}{2}$

$x = 12$

46)



$14x + 14 = 90 + 6x - 4$

$14x + 14 = 86 + 6x$

$-14 \quad -14$

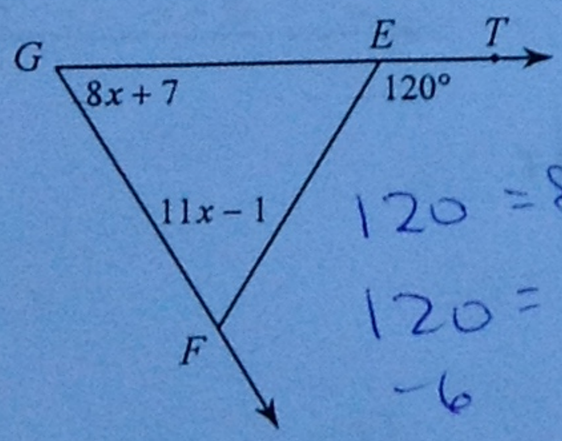
$14x = 72 + 6x$

$-6x \quad -6x$

$\frac{8x}{8} = \frac{72}{8}$

$x = 9$

47)



$120 = 8x + 7 + 11x - 1$

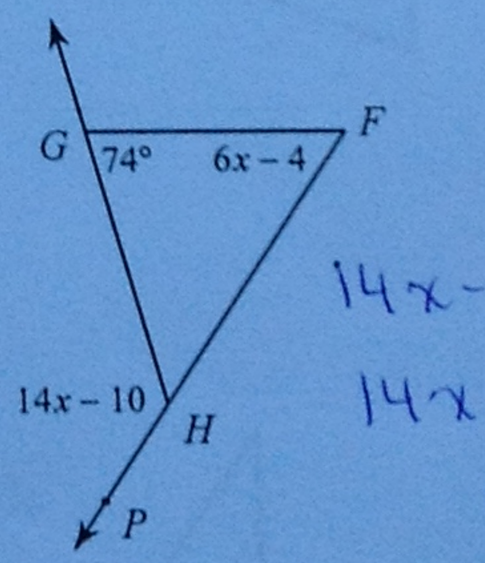
$120 = 19x + 6$

$-6 \quad -6$

$\frac{114}{19} = \frac{19x}{19}$

$6 = x$

48)



$14x - 10 = 74 + 6x - 4$

$14x - 10 = 70 + 6x$

$+10 \quad +10$

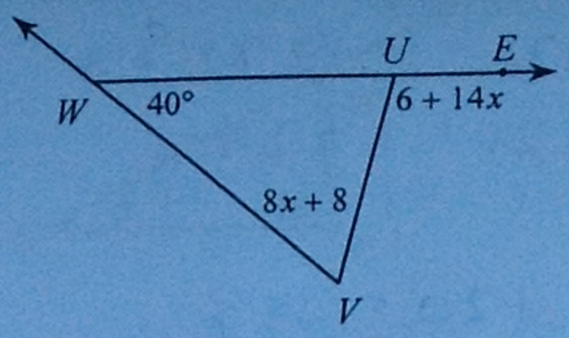
$14x = 80 + 6x$

$-6x \quad -6x$

$\frac{8x}{8} = \frac{80}{8}$

$x = 10$

49)



$6+14x = 40+8x+8$

$6+14x = 48+8x$

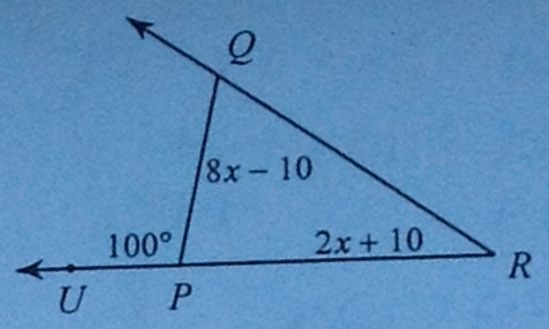
$-6 \quad -6$

$14x = 42 + 8x$

$-8x \quad -8x$

$\frac{6x}{6} = \frac{42}{6}$ $\boxed{x = 7}$

50)

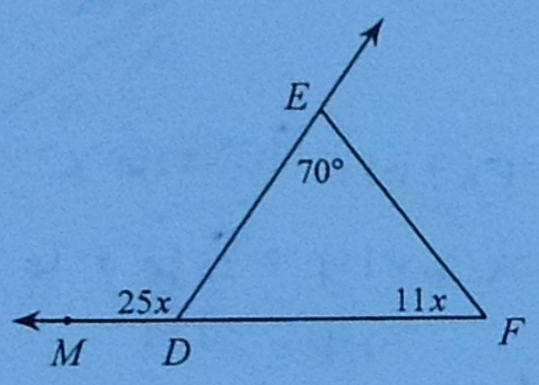


$100 = 8x - 10 + 2x + 10$

$\frac{100}{10} = \frac{10x}{10}$

$\boxed{10 = x}$

51)



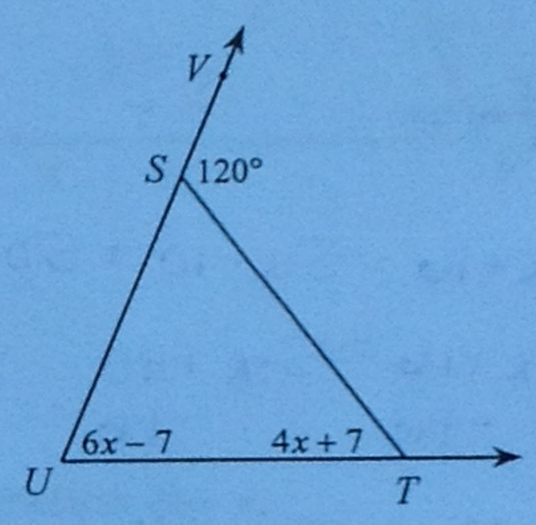
$25x = 11x + 70$

$-11x \quad -11x$

$\frac{14x}{14} = \frac{70}{14}$

$x = 5$

52)

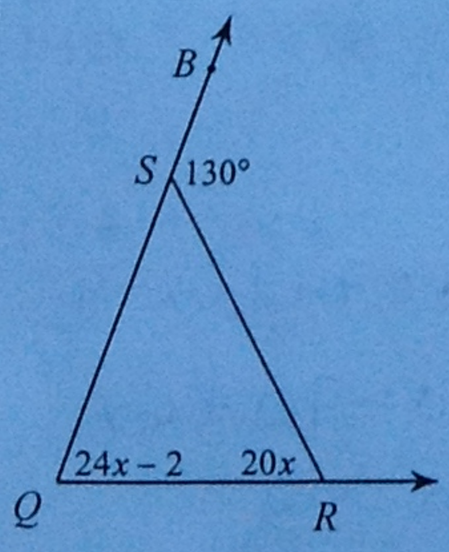


$120 = 6x - 7 + 4x + 7$

$\frac{120}{10} = \frac{10x}{10}$

$\boxed{12 = x}$

53)



$130 = 24x - 2 + 20x$

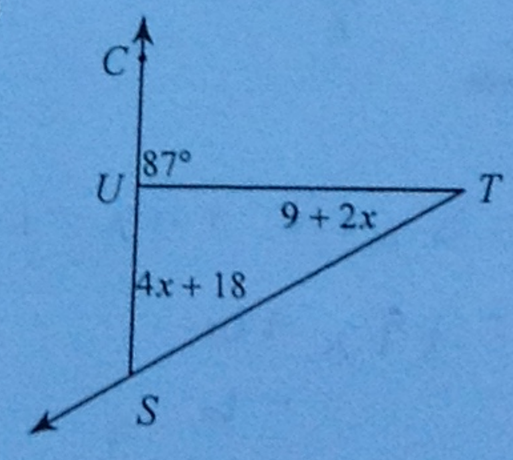
$130 = 44x - 2$

$+2 \quad +2$

$\frac{132}{44} = \frac{44x}{44}$

$\boxed{3 = x}$

54)



$87 = 4x + 18 + 9 + 2x$

$87 = 6x + 27$

$-27 \quad -27$

$\frac{60}{6} = \frac{6x}{6}$

$\boxed{10 = x}$.