Name: _____ **Rising Geometry Summer Math**

Please write your thinking on a separate sheet of paper and turn it in to your teacher this fall.

1. Solve for t and simplify your answer.

$$\frac{3}{5}t = 11$$

2. Solve for x and simplify your answer.

$$4 = -\frac{5}{4}x$$

3. Solve for y and simplify your answer.

$$-11 = \frac{2}{3}y$$

4. Solve for t and simplify your answer.

$$\frac{5}{6}t = 8$$

5. Solve for s and simplify your answer.

$$-3 = \frac{5}{2}s$$

6. Solve for y.

$$-10 = \frac{y}{11} - 13$$

7. Solve for z.

$$-18 + 5z = 37$$

8. Solve for a.

$$30 = 26 - \frac{a}{6}$$

9. Solve for b.

$$-7b - 12 = -61$$

10. Solve for y.

$$-3 = -11 - \frac{y}{11}$$

11. Solve for z.

$$-3 = -1.6z - 2.2$$

12. Solve for b.

$$-\frac{b}{0.4} + 3.4 = 6.4$$

13. Solve for a.

$$-0.1a - 1.8 = -2.11$$

14. Solve for a.

$$2.8 - 0.2a = 3.16$$

15. Solve for y.

$$3.9 = -\frac{y}{0.5} + 2.9$$

16. Solve for y.

$$-8 = -14 + \frac{1}{12}y$$

17. Solve for x.

$$\frac{1}{11}x + 1 = 3$$

18. Solve for z.

$$\frac{1}{12}z + 9 = 14$$

19. Solve for c.

$$56 = 16 + \frac{5}{12}c$$

20. Solve for a.

$$5 + \frac{7}{8}a = 82$$

21. Solve. $4(x - 7) = 0$

22. Solve. $4(y - 1) = 0$

23. Solve. $2(z - 9) = 0$

24. Solve. $5(y+4)=30$

25. Solve. $6(z+2)=48$

26. Solve for x in simplest form.

$$14=\frac{1}{2}(3x-6)$$

27. Solve for x in simplest form.

$$11=\frac{7}{2}(5x+4)$$

28. Solve for x in simplest form.

$$1=\frac{5}{2}(7x+6)$$

29. Solve for x in simplest form.

$$10 = \frac{4}{3}(8x + 12)$$

30. Solve for x in simplest form.

$$12 = \frac{3}{4}(3x + 8)$$

31. Solve for x:

$$-3.5 - 6.5(x + 1) = 1 - (7x + 1.6)$$

32. Solve for x:

$$x = -6 + 0.5(-0.8x + 9) + 2x$$

33. Solve for x:

$$6.4 = -(-x + 0.8) - 10x$$

34. Solve for x:

$$-0.6 - (8x - 1) = -7(x + 3.4)$$

35. Solve for x:

$$9.1 = 4(2x - 3.3) + 9.9$$

36. Combine like terms.

$$-7y^2 + 6x^3 + 3y^2 - 4x^3 - 6 - 2 - 2$$

37. Combine like terms.

$$6 + 2 + 2x + 6y + 2y + 1 + 2x$$

38. Combine like terms.

$$x - 3y^3 + 3x^3 - 5x - x^3 - x - 2x^3$$

39. Combine like terms.

$$-2y^3 + 3y - 3y + 7y^3 + 1 + 2 - 5$$

40. Combine like terms.

$$3 - 3 + x^3 + 6x^3 - 3y - 3 - 4x^3$$

41. Combine like terms.

$$-4 - 6x^3 + 3y^2 + 3 + 2 - x^3 - 5y^2$$

42. Combine like terms.

$$-7y - 6y^3 + 2y + 4y^3 - 5 - 1 - 2y^3$$

43. Combine like terms.

$$-3-3-2y+6y^3-7y^3+6y+2$$

44. Combine like terms.

$$-4x^3-6y^3+y^3-3+x^3+x^3+4y^3$$

45. Combine like terms.

$$y^3-y^2+4y^3+7y^2-3x^3+y^2+4y^3$$

46. Distribute $2x\left(1+4x\right)$.

47. Distribute $3\left(5-6x\right)$.

48. Distribute $2x\left(2-3x\right)$.

49. Distribute $3x\left(2x+2\right)$.

50. Distribute $3\left(1-2x^2\right)$.

51. Identify the greatest common factor of $30bwz$ and $15yz$.

52. Identify the greatest common factor of 8 and $40bx$.

53. Identify the greatest common factor of $45a$ and $15c$.

54. Identify the greatest common factor of 40 and $20az$.

55. Identify the greatest common factor of 20 and $40wx$.

56. Use multiplication to fully expand the expression below.

$$x^3y^6z^2$$

57. Use exponents to condense the expression below.

$$x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot z \cdot z$$

58. Use an exponent to condense the expression below.

$$y \cdot y$$

59. Use multiplication to fully expand the expression below.

$$(xyz)^2$$

60. Use multiplication to fully expand the expression below.

$$x^6y^4z$$

61. Simplify: $x^5 \cdot x^6$

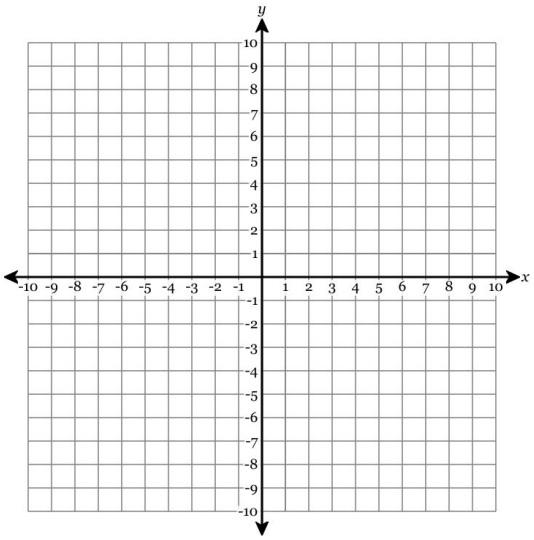
62. Simplify: $\left(k^3\right)^6$

63. Simplify: $\left(x^2\right)^6$

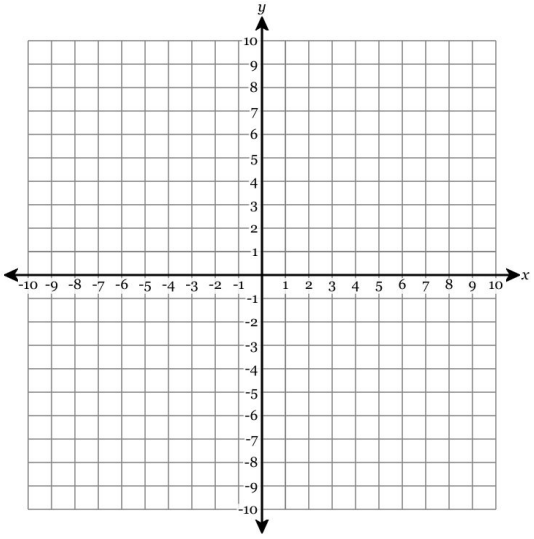
64. Simplify: $x \cdot x^3$

65. Simplify: $\left(m^6\right)^2$

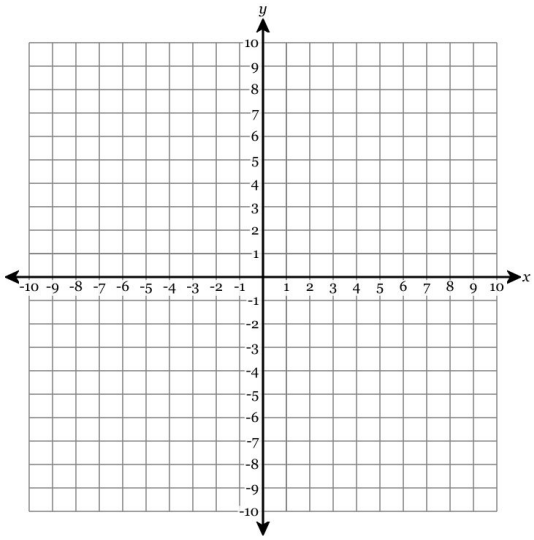
66. Plot the point $(5, -7)$.



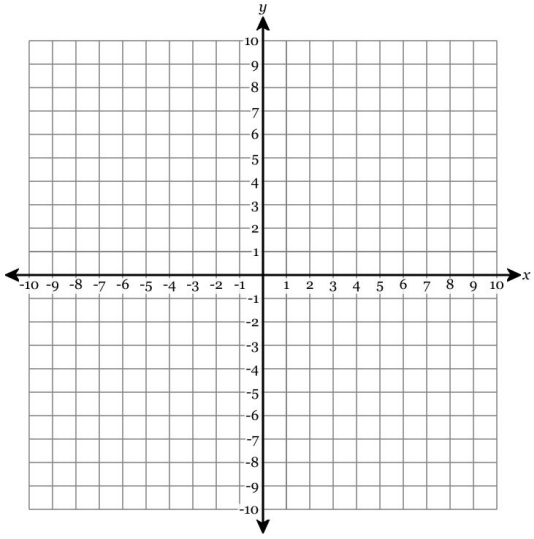
67. Plot the point $(2, 2)$.



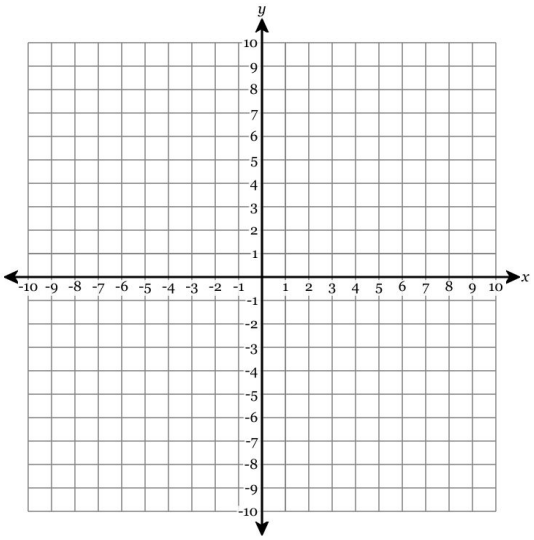
68. Plot the point $(-3, 0)$.



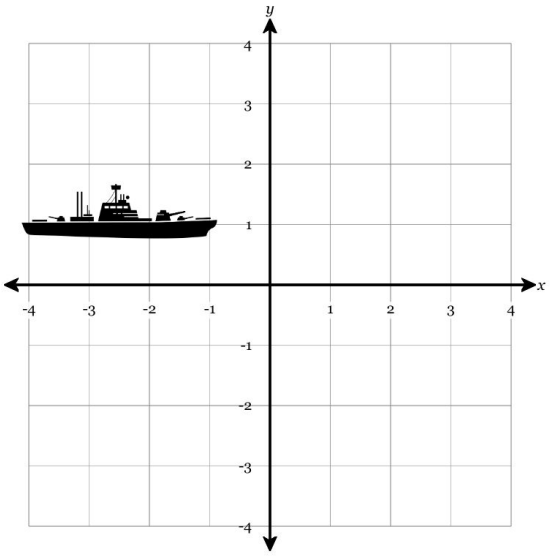
69. Plot the point $(-3, 1)$.



70. Plot the point $(-3, -2)$.



71. A battleship is located on the grid below. List the coordinates of all points covered by the battleship.



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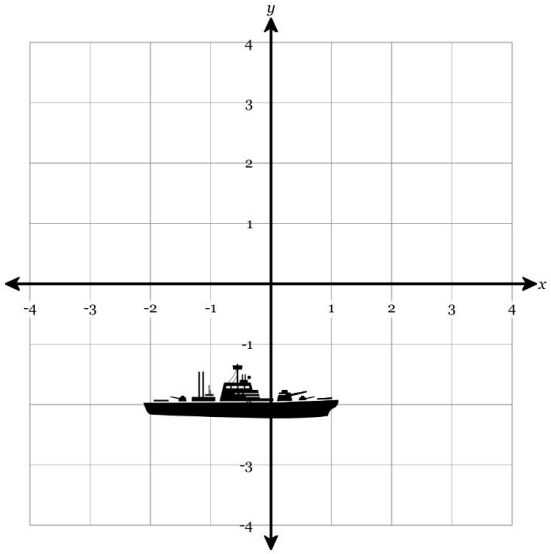
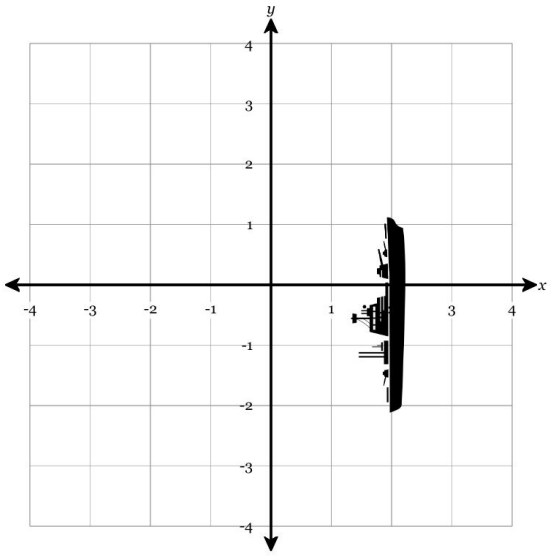
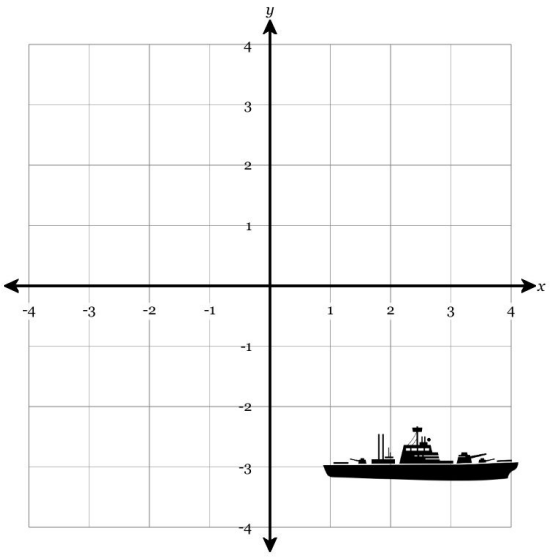


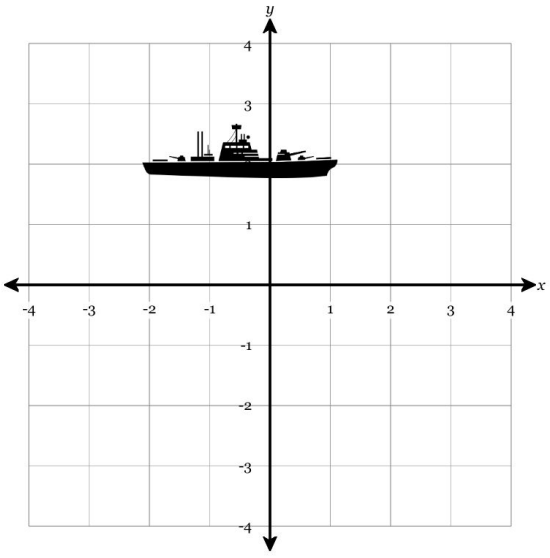
73. A battleship is located on the grid below. List the coordinates of all points covered by the battleship.



74. A battleship is located on the grid below. List the coordinates of all points covered by the battleship.



75. A battleship is located on the grid below. List the coordinates of all points covered by the battleship.



76. Find the slope of the line represented by the equation below.

$$y = 1 - \frac{3}{2}x$$

77. Find the y-intercept of the line represented by the equation below.

$$y = 4 + \frac{3}{5}x$$

78. Find the slope of the line represented by the equation below.

$$-2x = y$$

79. Find the y-intercept of the line represented by the equation below.

$$y = -1 + \frac{5}{3}x$$

80. Find the slope of the line represented by the equation below.

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

81. Convert $2\frac{1}{3}$ into an improper fraction.

82. Convert $\frac{23}{3}$ into a mixed number.

83. Convert $1\frac{3}{5}$ into an improper fraction.

84. Convert $\frac{52}{7}$ into a mixed number.

85. Convert $2\frac{7}{8}$ into an improper fraction.

86. Perform the operation and simplify the answer fully.

$$\frac{8}{5} \div \frac{5}{3}$$

87. Perform the operation and simplify the answer fully.

$$\frac{5}{9} \cdot \frac{2}{7}$$

88. Perform the operation and simplify the answer fully.

$$\frac{5}{2} \cdot \frac{1}{5}$$

89. Perform the operation and simplify the answer fully.

$$\frac{\frac{1}{3}}{\frac{2}{3}}$$

90. Perform the operation and simplify the answer fully.

$$\frac{5}{9} \div \frac{5}{8}$$

91. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$6\frac{1}{4} \times \frac{9}{10}$$

92. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$-\frac{1}{7} \div \frac{8}{3}$$

93. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$-\frac{7}{9} \cdot -\frac{5}{9}$$

94. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$-5\frac{1}{10} \div \frac{1}{2}$$

95. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$-3\frac{1}{3} \times -1\frac{3}{10}$$

96. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$\frac{8}{3} + \frac{11}{10}$$

97. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$\frac{3}{22} + \frac{5}{22}$$

98. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$\frac{7}{12} + \frac{7}{15}$$

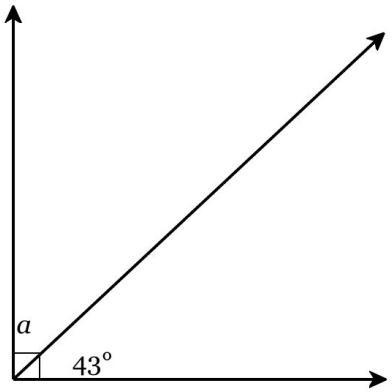
99. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$\frac{1}{2} + \frac{1}{14}$$

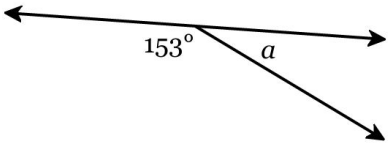
100. Evaluate the expression shown below and write your answer as a fraction or mixed number in simplest form.

$$\frac{3}{10} - \frac{11}{6}$$

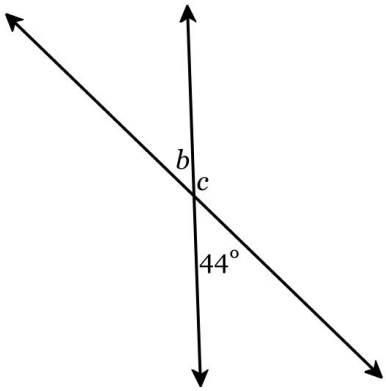
101. Find the measure of the missing angle.



102. Find the measure of the missing angle.

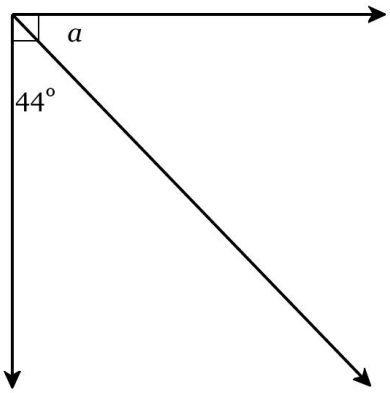


103. Find the measure of the missing angles.

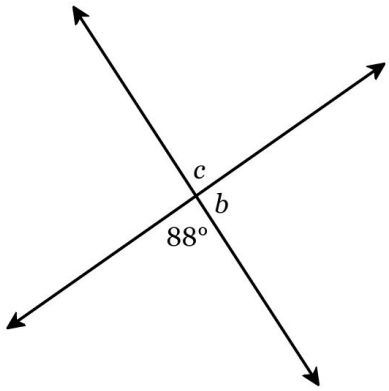


$b =$ _____° $c =$ _____°

104. Find the measure of the missing angle.

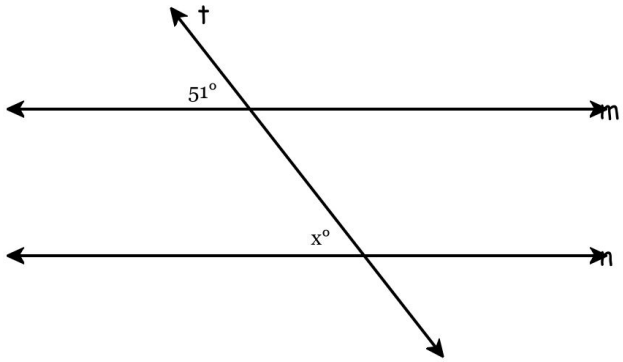


105. Find the measure of the missing angles.

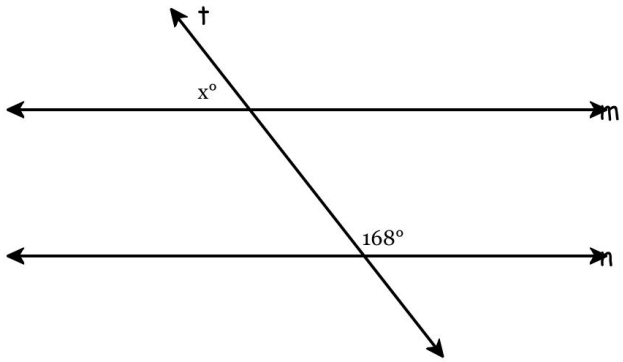


$b =$ _____° $c =$ _____°

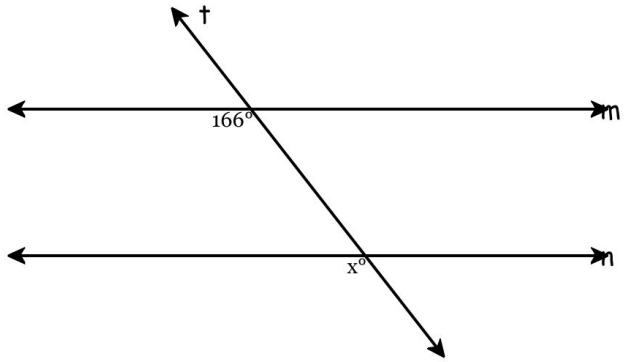
106. Given $m \| n$, find the value of x.



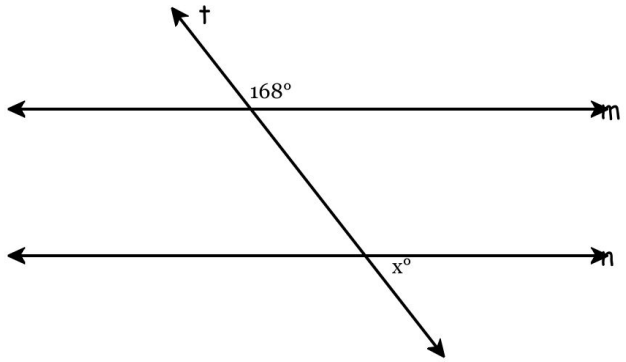
107. Given $m \| n$, find the value of x.



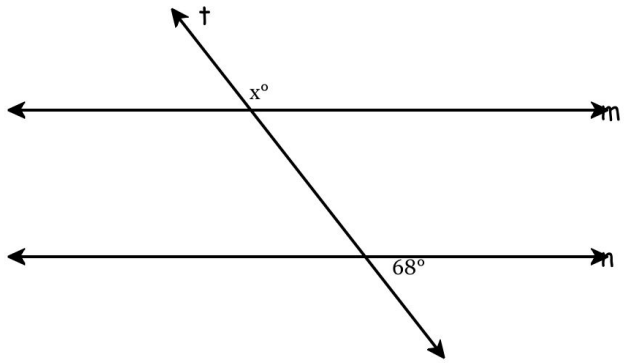
108. Given $m||n$, find the value of x.



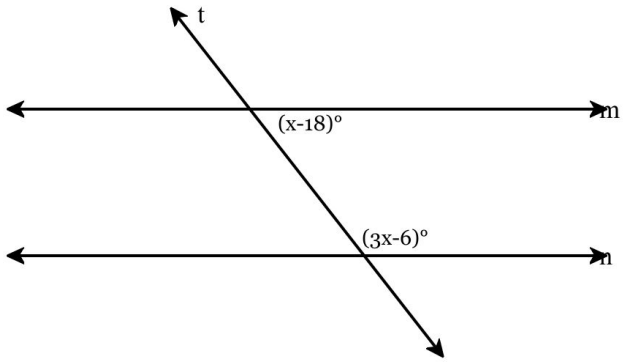
109. Given $m||n$, find the value of x.



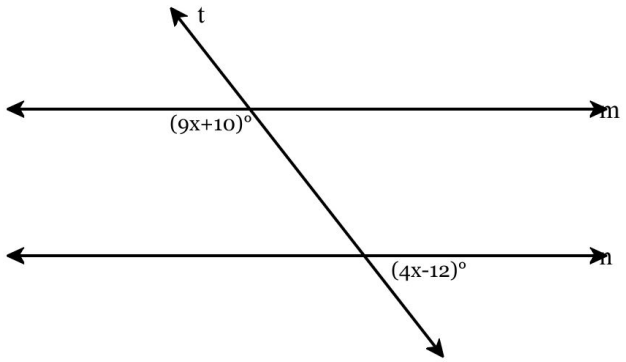
110. Given $m||n$, find the value of x.



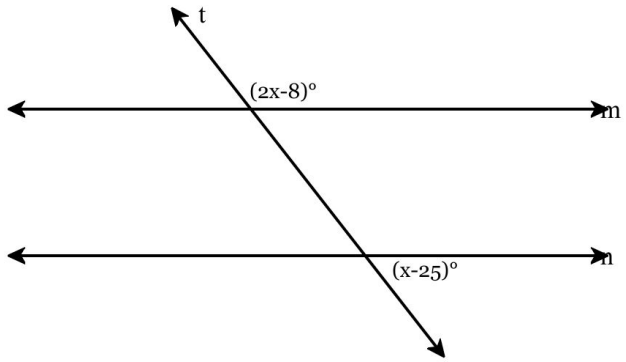
111. Given $m||n$, find the value of x.



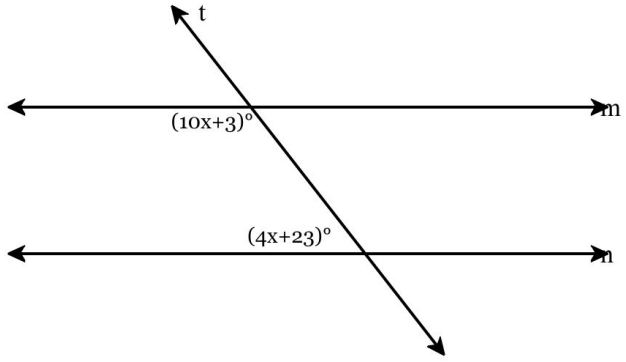
112. Given $m||n$, find the value of x.



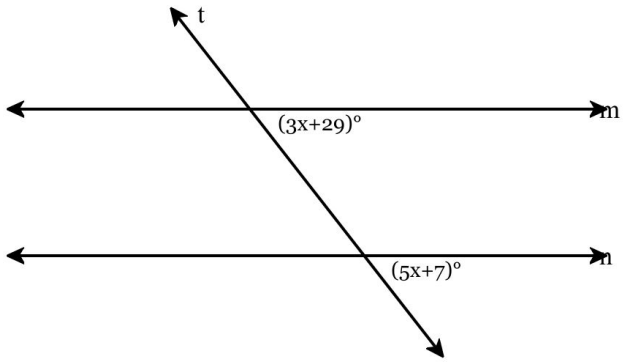
113. Given $m||n$, find the value of x.



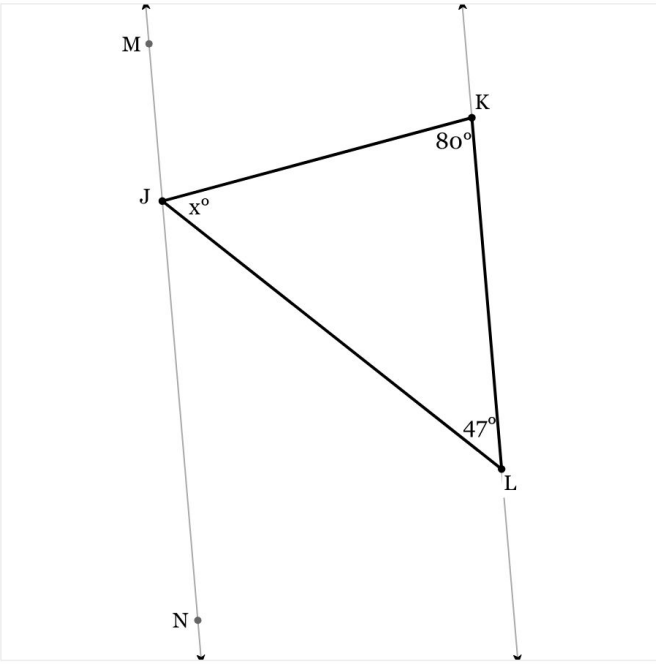
114. Given $m||n$, find the value of x.



115. Given $m||n$, find the value of x.



116. In the figure below, $\triangle JKL$ is drawn. The line $\overleftrightarrow{MJN}$ is drawn such that $\overleftrightarrow{MJN} \parallel \overline{KL}$.



m∠KJM = _____° because ∠KJM and ∠JKL are

_____.

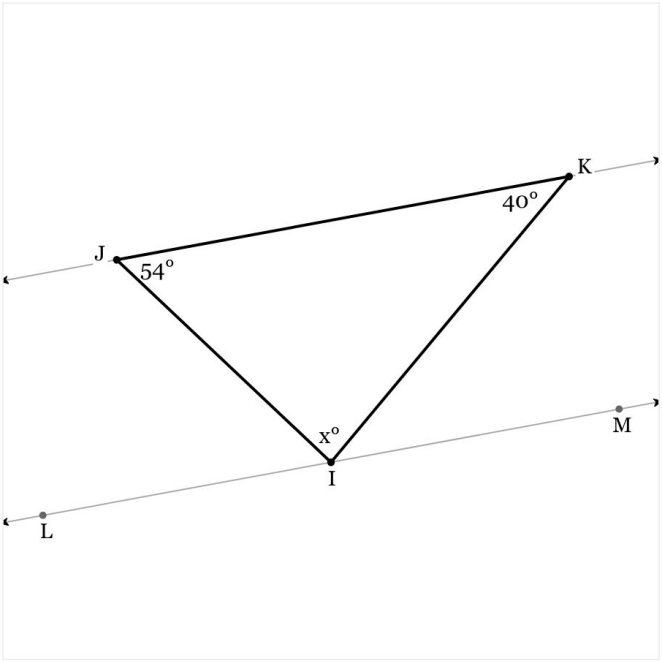
m∠LJN = _____° because ∠LJN and ∠KLJ are

_____.

m∠KJM + x° + m∠LJN = _____° because the three angles (are complementary / are all congruent / are all acute / are vertical angles / form a straight line).

So the value of x must be _____.

117. In the figure below, $\triangle IJK$ is drawn. The line $\overleftrightarrow{LIM}$ is drawn such that $\overleftrightarrow{LIM} \parallel \overline{JK}$.



m∠JIL = _____° because ∠JIL and ∠IJK are

_____.

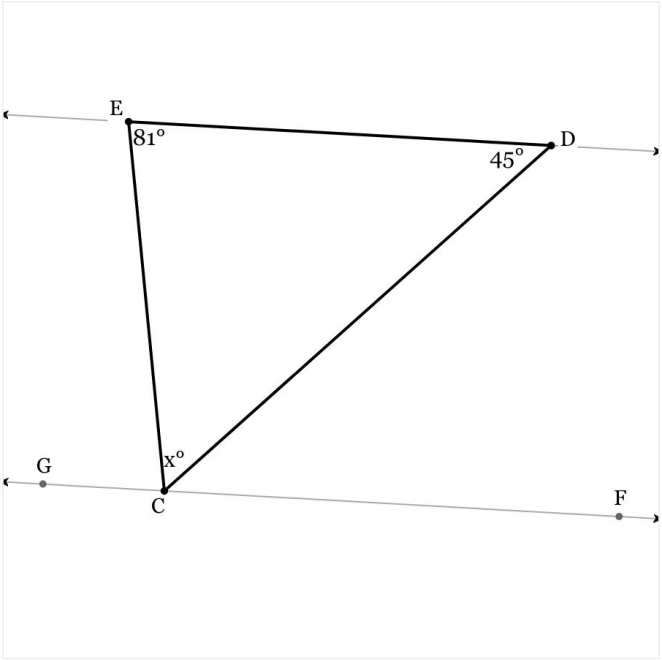
m∠KIM = _____° because ∠KIM and ∠JKI are

_____.

m∠JIL + x° + m∠KIM = _____° because the three angles (are complementary / are vertical angles / are all congruent / are all acute / form a straight line).

So the value of x must be _____.

118. In the figure below, $\triangle CDE$ is drawn. The line $\overleftrightarrow{FCG}$ is drawn such that $\overleftrightarrow{FCG} \parallel \overline{DE}$.



m∠DCF = _____° because ∠DCF and ∠CDE are

_____.

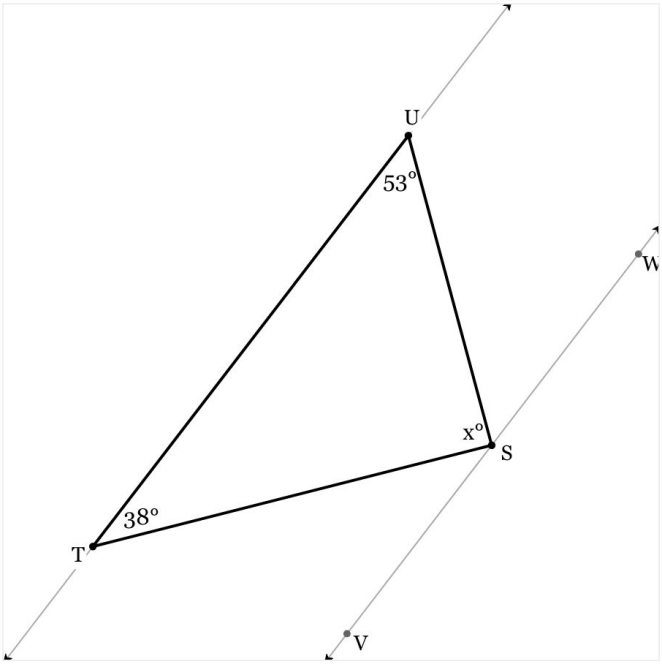
m∠ECG = _____° because ∠ECG and ∠DEC are

_____.

m∠DCF + x° + m∠ECG = _____° because the three angles (are complementary / are vertical angles / form a straight line / are all acute / are all congruent).

So the value of x must be _____.

119. In the figure below, $\triangle STU$ is drawn. The line $\overleftrightarrow{VSW}$ is drawn such that $\overleftrightarrow{VSW} \parallel \overline{TU}$.



m∠TSV = _____° because ∠TSV and ∠STU are

_____.

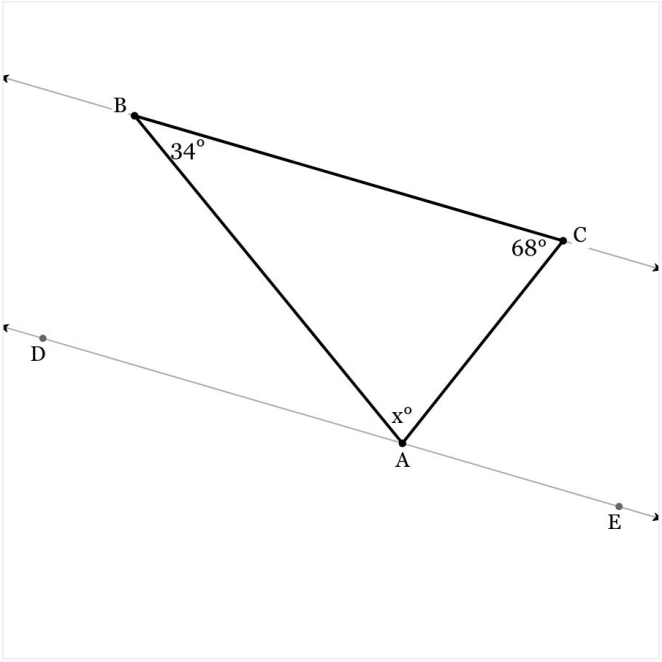
m∠USW = _____° because ∠USW and ∠TUS are

_____.

m∠TSV + x° + m∠USW = _____° because the three angles (form a straight line / are vertical angles / are all acute / are complementary / are all congruent).

So the value of x must be _____.

120. In the figure below, $\triangle ABC$ is drawn. The line $\overleftrightarrow{DAE}$ is drawn such that $\overleftrightarrow{DAE} \parallel \overline{BC}$.



m∠BAD = _____° because ∠BAD and ∠ABC are

_____.

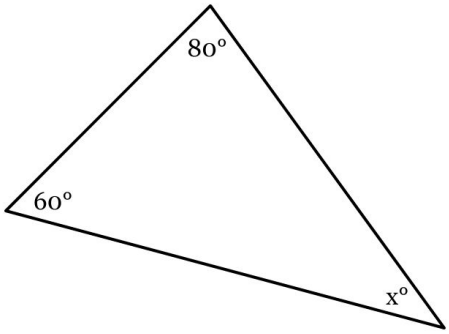
m∠CAE = _____° because ∠CAE and ∠BCA are

_____.

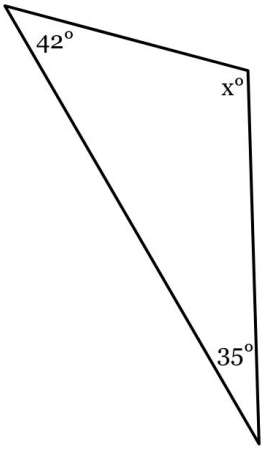
m∠BAD + x° + m∠CAE = _____° because the three angles (are all acute / form a straight line / are complementary / are all congruent / are vertical angles).

So the value of x must be _____.

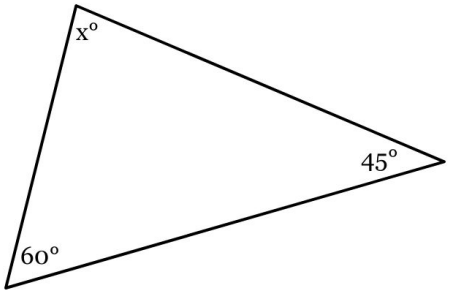
121. The measures of the angles of a triangle are shown in the figure below. Solve for x.



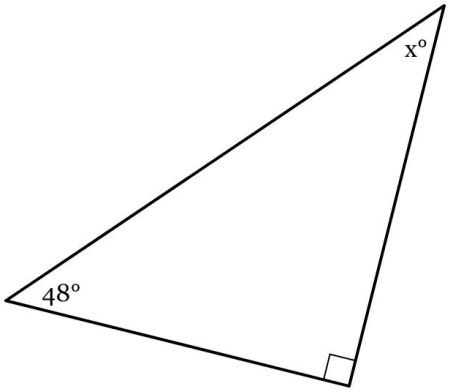
122. The measures of the angles of a triangle are shown in the figure below. Solve for x.



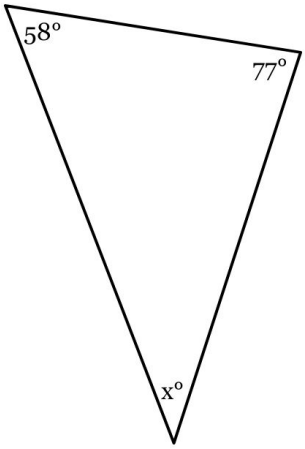
123. The measures of the angles of a triangle are shown in the figure below. Solve for x.



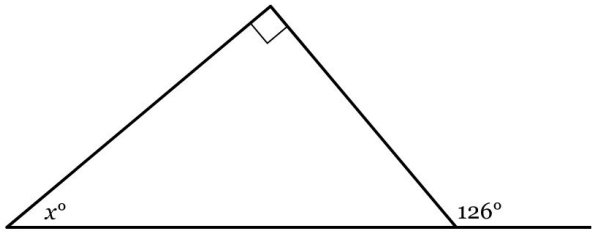
124. The measures of the angles of a triangle are shown in the figure below. Solve for x.



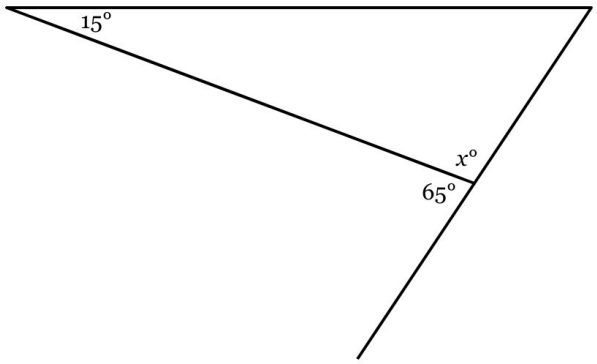
125. The measures of the angles of a triangle are shown in the figure below. Solve for x.



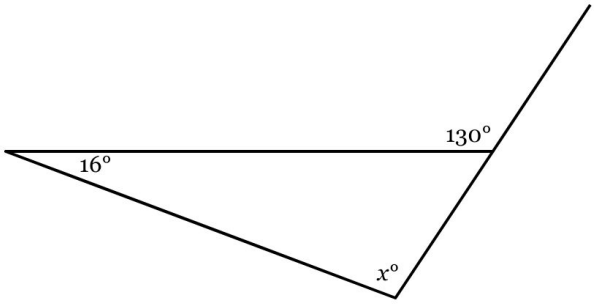
126. A side of the triangle below has been extended to form an exterior angle of 126°. Find the value of x.



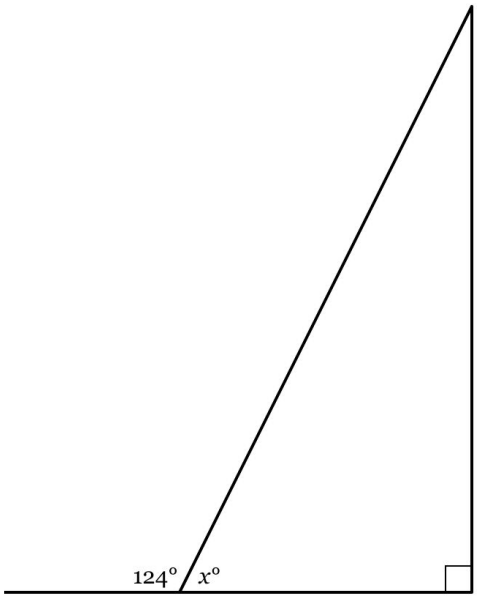
127. A side of the triangle below has been extended to form an exterior angle of 65°. Find the value of x.



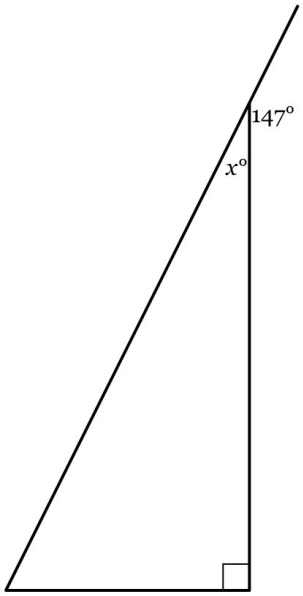
128. A side of the triangle below has been extended to form an exterior angle of 130°. Find the value of x.



129. A side of the triangle below has been extended to form an exterior angle of 124°. Find the value of x.



130. A side of the triangle below has been extended to form an exterior angle of 147°. Find the value of x.



131. In ΔSTU, $\overline{SU}$ is extended through point U to point V, $\text{m}\angle STU = (x - 3)^\circ$, $\text{m}\angle UST = (3x + 11)^\circ$, and $\text{m}\angle TUV = (6x - 18)^\circ$. Find $\text{m}\angle STU$.

132. In ΔKLM, $\text{m}\angle K = (5x - 2)^\circ$, $\text{m}\angle L = (9x - 3)^\circ$, and $\text{m}\angle M = (x - 10)^\circ$. Find $\text{m}\angle L$.

133. In ΔLMN, $\text{m}\angle L = (6x + 6)^\circ$, $\text{m}\angle M = (2x + 8)^\circ$, and $\text{m}\angle N = (2x + 16)^\circ$. What is the value of x?

134. In ΔFGH, $\overline{FH}$ is extended through point H to point I, $\text{m}\angle FGH = (3x + 15)^\circ$, $\text{m}\angle GHI = (8x - 2)^\circ$, and $\text{m}\angle HFG = (3x + 17)^\circ$. What is the value of x?

135. In ΔUVW, $\text{m}\angle U = (8x + 18)^\circ$, $\text{m}\angle V = (4x - 5)^\circ$, and $\text{m}\angle W = (2x - 1)^\circ$. Find $\text{m}\angle U$.