35. Which lines, if any, can be proved parallel given the following diagram?
For each conclusion, provide the justification.

36. Find the slope of the line passing through the given points
a. \( A(6, -5) \) and \( B(-5, -7) \)
\[
\frac{y_2 - y_1}{x_2 - x_1} = \frac{-7 + 5}{-5 - 6} = \frac{-2}{-11} = \frac{2}{11}
\]
b. \( A(-2, 3) \) and \( B(5, 3) \)
\[
\frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 3}{5 + 2} = \frac{0}{7} = 0
\]

37. Consider the line graphed at the right (scaled by 1).
In standard form, write the equation of the line.

38. Which best describes the relationship between the line that passes through \((7, 1)\) and \((10, 5)\) and the line that passes through \((-8, 5)\) and \((-5, 9)\)?
- a. same line
- b. perpendicular
- c. neither perpendicular nor parallel

39. Find the slope of a line perpendicular to the line containing the points \((3, -7)\) and \((4, -3)\).
\[
\frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 + 7}{-3 - 4} = \frac{4}{7}
\]

40. Decide whether Line 1 and Line 2 are parallel, perpendicular, or neither.
Line 1 passes through \((4, -6)\) and \((6, -2)\)
Line 2 passes through \((2, -8)\) and \((11, -6)\)

41. Tell whether the lines through the given points are parallel, perpendicular, or neither.
- Line 1: \((2, 2), (4, 5)\)
- Line 2: \((4, -9), (-6, -4)\)

42. Find the slope-intercept form of the line passing through the point \((9, 8)\) and parallel to the line \(y = 8x + 5\).
\[
8 = 8(9) + b \Rightarrow b = -64
\]

43. Identify the x- and y-intercepts of the graph of the equation \(6x - 4y = 27\).
\[
\frac{x}{5} + \frac{y}{-6} = 1 \Rightarrow \frac{x}{5} = \frac{1}{1} \Rightarrow x = 5, \frac{y}{-6} = \frac{1}{1} \Rightarrow y = -6
\]

44. Graph the linear equation \(8x - 2y = -12\) by finding x- and y-intercepts.
\[
\frac{8x}{8} - \frac{2y}{-2} = \frac{-12}{8} \Rightarrow \frac{x}{1} - \frac{y}{-1} = \frac{1}{1} \Rightarrow y = 2x - 6
\]

45. Find the measure of the interior angles to the nearest tenth.
(Drawing is not to scale.)
\[
\angle x + 2x + 12x + 1 = 180
\]
\[
\frac{5x}{5} = \frac{72}{4} \Rightarrow x = 35.2
\]
46. Refer to the figure below. Find m∠A.

\[ \begin{align*}
\text{106°} \\
\text{39°} \\
\text{67°}
\end{align*} \]

52. Given: \( \angle BAC \cong \angle DAC, \angle DCA \cong \angle BCA \)
Prove: \( \overline{BC} \cong \overline{DC} \)

**Statements**
- \( \angle BAC \cong \angle DAC \)
- \( \angle DCA \cong \angle BCA \)

**Reasons**
- \( \text{Given} \)
- \( \text{Replena} \)
- \( \text{AC \cong AC} \)
- \( \text{ASA} \)
- \( \text{CPCF} \)

53. Given: \( \angle BAC \cong \angle DAC, \angle B \cong \angle D \)
Prove: \( \overline{BC} \cong \overline{DC} \)

**Statements**
- \( \angle BAC \cong \angle DAC \)
- \( \angle B \cong \angle D \)
- \( \overline{BC} \cong \overline{DC} \)

**Reasons**
- \( \text{Given} \)
- \( \text{Replena} \)
- \( \text{AC \cong AC} \)
- \( \text{ASA} \)
- \( \text{CPCF} \)

47. Find \( x \).

\[ \begin{align*}
110° & \equiv 51° \\
50° & \equiv 10° \\
90° & \equiv 9°
\end{align*} \]

51. Given: \( \angle BAC \cong \angle DAC, \angle DCA \cong \angle BCA \)
Prove: \( \overline{BC} \cong \overline{DC} \)

**Statements**
- \( \angle BAC \cong \angle DAC \)
- \( \angle DCA \cong \angle BCA \)

**Reasons**
- \( \text{Given} \)
- \( \text{Replena} \)
- \( \text{AC \cong AC} \)
- \( \text{ASA} \)
- \( \text{CPCF} \)

48. Solve for \( x \), given that \( \overline{AB} \cong \overline{BC} \). Is \( \triangle ABC \) equilateral?

\[ \begin{align*}
7 & = x - 1 \\
\frac{7}{2} & = x \\
x & = 8
\end{align*} \]

49. Refer to the figure shown. Which of the following statements is true?

\[ \text{a. } \triangle TUV \cong \triangle XWV \text{ by ASA} \\
\text{b. } \triangle TUV \cong \triangle XWV \text{ by SAS} \\
\text{c. } \triangle TUV \cong \triangle XWV \text{ by SSS} \\
\text{d. } \triangle TUV \cong \triangle XWV \text{ by SSS} \]

Be careful! Order matters!

50. State two postulates or theorems that can be used to conclude that \( \triangle AOB \cong \triangle COD \).

\[ \text{SSS, SAS} \]

51. Find the length of \( LM \). State the postulate or theorem you use.

\[ \text{ASA} \]

52. **Statements**
- \( \angle BAC \cong \angle DAC \)
- \( \angle DCA \cong \angle BCA \)

**Reasons**
- \( \text{Given} \)
- \( \text{Replena} \)
- \( \text{AC \cong AC} \)
- \( \text{ASA} \)
- \( \text{CPCF} \)

53. **Statements**
- \( \angle BAC \cong \angle DAC \)
- \( \angle B \cong \angle D \)

**Reasons**
- \( \text{Given} \)
- \( \text{Replena} \)
- \( \text{AC \cong AC} \)
- \( \text{ASA} \)
- \( \text{CPCF} \)

54. Given: \( PR \) and \( QS \) bisect each other
Prove: \( \triangle PQR \cong \triangle RSP \)

**Statements**
- \( PR \text{ and } QS \text{ bisect each other} \)
- \( \overline{PR} \cong \overline{QS} \)

**Reasons**
- \( \text{Given} \)
- \( \text{Replena} \)
- \( \text{AC \cong AC} \)
- \( \text{ASA} \)
- \( \text{CPCF} \)

55. Find the length of \( LM \). State the postulate or theorem you use.

\[ \text{ASA} \]
55. Given \( m \angle WXY = m \angle WYX; WX = 3n + 5, WY = 6n - 3; \)
\[ XY = 9; \text{find } WX \]
\[
\frac{6n-3}{3} = \frac{3n+5}{3}
\]
\[ n = 3 \]

56. Mr. Jones has taken a survey of college students and found that 60 out of 64 students are liberal arts majors. If a college has 7,723 students, what is the best estimate of the number of students who are liberal arts majors?
\[
\frac{60}{64} \times 7723 = \frac{64x}{64} = 963,380 \]
\[ x = 7,240 \text{ students} \]

57. A worker in an assembly line takes 5 hours to produce 26 parts. At that rate, how many parts can he produce in 20 hours?
\[
\frac{5x}{26 \text{ parts}} = \frac{20x}{104 \text{ parts}}
\]

58. Solve the proportion \( \frac{5}{x-7} = \frac{1}{x} \).
\[ 5x - 7x = -7 \]
\[ x = -7 \]

59. While visiting a daycare center, you estimate the ratio of toddlers to infants as 3:2. If the center has an enrollment of 30 children, about how many of them are infants?
\[ 3 \times 2 = 6, \quad 30 \times \frac{6}{7} = 12 \text{ infants} \]

60. A triangle with a perimeter of 63 feet has side lengths in the extended ratio of 6:7:8. Find the side lengths of the triangle.
\[ 6x + 7x + 8x = 63 \]
\[ 21x = 63 \]
\[ x = 3 \]

61. Use the figure to find \( m \angle CED \). The figure is not drawn to scale.
\[ \frac{12}{x} \times 19 = \frac{26}{12x + 28x} \]
\[ x = 3 \frac{14}{19} \]

62. Late in the afternoon, a man who is 6 feet tall casts a 15-foot shadow. He is not far from a tower 68 feet tall. How long, in feet, is the shadow of the tower?
\[ \frac{6}{X} = \frac{15}{68} \]
\[ X = \frac{15 \times 68}{6} = 170 \text{ feet} \]

63. One way to show that two triangles are similar is to show that
a. two angles of one are congruent to two angles of the other
b. two sides of one are proportional to two sides of the other
c. a side of one is congruent to a side of the other
d. an angle of one is congruent to an angle of the other

64. Shown at the right is an illustration of the ________.

65. The postulate or theorem that can be used to prove that the two triangles are similar is ________.

66. In \( \triangle ABC \), \( AB = 10 \), \( KC = 13 \), and \( LJ = 8 \). In \( \triangle DEF \), \( RS = 39 \), and \( ST = 24 \). State whether the triangles are similar, and if so, write a similarity statement.
\[
\frac{10}{39} = \frac{13}{39} = \frac{8}{24} \]

67. Find the value of \( x \) to one decimal place.
\[ \frac{10}{39} = \frac{13}{39} = \frac{8}{24} \]

68. For the figure shown, which statement is not true?
\[ \frac{w}{x} = \frac{y}{z} \]
\[ \frac{WX = yz}{C} \]
\[ \frac{wx = xy}{c} \]
\[ \frac{wz = xy}{d} \]
\[ \frac{w}{x} = \frac{y}{z} \]

69. Given: \( PQ \parallel BC \). Find the length of \( AB \).
\[ \frac{X}{12} = \frac{12}{18} \]
\[ X = 8 + 12 = 20 \]

70. The dashed triangle is the image of the solid triangle formed by a dilation centered at the origin. What is the scale factor?
\[ (x-scale = y-scale = 1) \]
\[ \frac{X}{8} = 2 \]
\[ \frac{X}{8} = \frac{20}{9} \]