Name the geometric term(s) modeled by each object.

1) A telephone pole
   \[ \text{line} \]

2) a knot in a rope
   \[ \text{point} \]

3) a blanket
   \[ \text{plane} \]

Refer to the figure to answer each question.

4) name a line that contains point E
   \[ \overline{BE} \text{, line q} \]

5) name the plane containing lines p and n
   \[ \text{Plane G} \]

6) name two points not on AB
   \[ D, C \]

Find the value of the variable and \( YZ \) if \( Y \) is between \( X \) and \( Z \).

7) \( XY = 4x + 3 \), \( YZ = 2x - 7 \), \( XZ = 22 \)

   \[
   \begin{align*}
   XY + YZ &= XZ \\
   4x + 3 + 2x - 7 &= 22 \\
   6x &= 24 \\
   x &= 4
   \end{align*}
   \]

   \[
   YZ = 2(4) - 7 \\
   YZ = 1
   \]

8) Find the distance between the given two points: \( A(-3, 4) \) and \( B(2, -4) \)

   \[
   d = \sqrt{(-3-2)^2 + (4-(-4))^2} \\
   = \sqrt{(-5)^2 + (8)^2} \\
   = \sqrt{25 + 64} \\
   = \sqrt{89}
   \]

9) Find the midpoint given the endpoints: \( C(-2, 5) \) and \( D(3, -17) \)

   \[
   \left( \frac{-2 + 3}{2}, \frac{5 - 17}{2} \right) = \left( \frac{1}{2}, \frac{-12}{2} \right) \\
   \left( \frac{0.5}{2}, -6 \right)
   \]
10) Find the coordinates of the missing endpoint if B is the midpoint of line AC. C(-5, 4) and B(-2, 5)

\[ \left( \frac{-5 + x}{2}, \frac{4 + y}{2} \right) \]

Way Z:

\[ (-5, 4) \quad (-2, 5) \quad (1, 4) \]

11) Suppose M is the midpoint of line FG. Use the given information to find the missing measure or value.

FM = 3x - 4, MG = 5x - 26, FG = ?

\[
\begin{align*}
3x - 4 &= 5x - 26 \\
+4 &= +4 \\
3x &= 5x - 22 \\
-5x &= -5x \\
-2x &= -22 \\
x &= 11
\end{align*}
\]

FM = 29, MG = 29, FG = 58

12) MG = 7x - 15, FG = 33, x = ?

\[
\begin{align*}
7x - 15 &= \frac{1}{2}FG \\
7x - 15 &= \frac{1}{2}(33) \\
7x - 15 &= 16.5 \\
7x &= 31.5 \\
x &= 4.5
\end{align*}
\]

13) \( \angle CFD \) and \( \angle BFC \)

adjacent

14) \( \angle AFD \) and \( \angle EFD \)

adjacent, linear pair

Find the value of each variable.

15)

\[ 4y + 3y - 30 = 180 \]

\[ 7y - 30 = 180 \]

\[ 7y = 210 \]

\[ y = 30 \]

\[ \angle 1 = 120^\circ \]

16)

\[ 5x + 4 = 114 \]

\[ 5x = 110 \]

\[ x = 22 \]

\[ 2y + 3(22) - 24 = 180 \]

\[ 2y + 66 - 24 = 180 \]

\[ 2y + 42 = 180 \]

\[ 2y = 138 \]

\[ y = 69 \]
17) \[ 4x - 45 = 215 \]
\[ 4x = 260 \]
\[ x = 65^\circ \]

18) \( \angle E \) and \( \angle F \) are supplementary. The measure of \( \angle E \) is 54 more than the measure of \( \angle F \). Find the measures of each angle.
\[
\angle E = x + 54 = 117^\circ \\
\angle F = x = 63^\circ
\]

19) The measures of two complementary angles are \( \angle 1 = 9x + 5 \) and \( \angle 2 = 3x + 1 \). Find the measures of BOTH angles. Draw a picture if you need to!
\[
\angle 1 + \angle 2 = 90^\circ \\
9x + 5 + 3x + 1 = 90 \\
12x + 6 = 90 \\
x = 6.5 \\
\angle 1 = 9(7) + 5 = 68^\circ \\
\angle 2 = 22^\circ \\
90 - 68 = 22^\circ
\]

Use the figure to answer questions 20-24.

20) name a pair of vertical angles
\( \angle BFC, \angle DFG \)

21) name a pair of obtuse vertical angles
\( \angle BFD, \angle CFG \)

22) name a pair of adjacent angles
\( \angle FDG, \angle EDG \)

23) name a linear pair with vertex D
\( \angle EDF, \angle ADF \)

24) name 3 non-collinear points
A, C, D