

Show all of your work please.

1. Find the 30th term of an arithmetic sequence, if the 12th term is $-\frac{38}{5}$ and the 35th term is $\frac{-84}{5}$

2. Fill in the blanks for the sets of numbers.

a) $Q \cap Z = \underline{\hspace{2cm}}$ b) $\underline{\hspace{2cm}} \cup Q = R$ c) $Z \cap \underline{\hspace{2cm}} = W$

3. Write the equation of the line in slope-intercept form ($y = mx + b$) that contains the points (3, -5) and (-7, 1).

4. Write the equation of the line in standard form ($Ax + By = C$) that passes through (-4, 2) and is perpendicular to the line with equation $-5x + 2y = 8$.

5. Given the geometric sequence $3, -2, \frac{4}{3}, \frac{-8}{9}, \dots$ a) Find the general term a_n . b) Find the sum of the first 10 terms.