

Linear Applications

1. You are selling tickets for a high school play. Student tickets cost \$4 and general admission tickets cost \$6. You sell 525 tickets and collect \$2876. How many of each type of ticket did you sell?
2. A Biology test is worth 100 points and there are 26 problems in all. Some of the problems are worth 5 points and some are worth 3 points. How many 5-point questions are there and how many 3-point questions are there?
3. Joe works at a movie theater that sells adult tickets for \$7 and kid's tickets for \$4. On Friday, they sold a total of 957 tickets and made a total of \$6447. How many adult tickets and how many kid's tickets did they sell?
4. Kelly and MaryAnn got take-out for their families for lunch. Kelly bought 6 sandwiches and 2 salads for \$22.90. MaryAnn bought 3 sandwiches and 5 salads for \$20.05. How much does each sandwich and each salad cost?
5. The value of your EFG stock is three times the value of your PQR stock. If the total value of the stocks is \$4500, how much is invested in each company?

Slope

1. Find the equation of the line in point-slope form that passes through $(-6,4)$ and $(3,-8)$
2. Find the value of w for which the slope of the line through $(w,-15)$ and $(2w-1,-29)$ is $-\frac{7}{2}$
3. Find the value of k for which the slope of the line through $(-2,k)$ and $(5,3k-4)$ is 8.
4. Find the value of p so that the slope between the points $(p,-9)$ and $(5,3)$ is undefined
5. Find the equation of the line with a slope of 0 through $(-2,11)$.

Parallel and Perpendicular

1. Find the equation of the line in slope-intercept form that is parallel to $y=7-4x$ and passes through $(2,-5)$.
2. Find the equation of the line in point-slope form that is perpendicular to $5y-x=15$ and passes through $(-3,7)$.
3. Find the equation of the line that is parallel to $x=6$ and passes through the point $(-9,13)$.
4. Find the equation of the line perpendicular to $4x+3y=24$ through $(-8,-10)$.
5. Find the equation of the line parallel to $5x-2y=20$ and through the point $(-6,-13)$.

Sequences

1. Find the recursive formula (using u_0) and u_4 if $u_1 = -226$ and $d = 200$.
2. Find the explicit formula and u_{12} if $u_1 = 28$ and $d = -5$.
3. Given the sequence $-34, -64, -94, -124, \dots$ write a recursive formula (using u_0).
4. Given the sequence $\frac{2}{3}, 1, \frac{4}{3}, \frac{5}{3}, \dots$ write an explicit formula.
5. Given the explicit formula $u_n = -11 + 7n$, find u_8 and write the recursive formula (using u_0).

Linear Systems

1. Solve
$$\begin{aligned} 5x + y &= 9 \\ 10x - 7y &= -9 \end{aligned}$$

2. Solve
$$\begin{aligned} -3x + 3y &= 4 \\ -x + y &= 3 \end{aligned}$$

3. Solve
$$\begin{aligned} x + 6y &= 16 \\ -8x - 2y &= -13 \end{aligned}$$

4. Solve
$$\begin{aligned} 6x - 2y &= 4 \\ 3y - 9x &= -6 \end{aligned}$$

5. Solve
$$\begin{aligned} 7x &= 3y - 16 \\ 9y &= 5x - 16 \end{aligned}$$