## Linear Functions

Key Ideas:

1. Distance and Midpoint

- label your points $\left(x_{1}, y_{1}\right),\left(x_{2}, y_{2}\right)$

2. Parallel / Perpendicular Slopes

- parallel (same), perpendicular (negative reciprocals)

3. Forms of the Equation

- slope-intercept form
- slope-point form
- general form (no fractions or decimals!)
*Note: Substitute into formulas carefully! Watch your positive and negative signs!!

1. Calculate the distance from $A(6,-4)$ to $B(1,5)$.
2. Determine the midpoint of $A(-5,3)$ and $B(-11,-7)$.
3. Determine the slope of a line perpendicular to $3 x-5 y+10=0$.
4. Write an equation for a line with a slope of $\frac{-3}{5}$ and a $\boldsymbol{y}$-intercept of -8 .
5. Write an equation for a line having a slope of 4 and passing through $\boldsymbol{P}(-2,9)$.
6. Write an equation for a line that passes through the points, $\boldsymbol{A}(\mathbf{5}, \mathbf{- 1})$ and $B(-3,4)$.
7. Write the equation, $y-2=\frac{-2}{3}(x+6)$ in general form.
8. Write the equation of a line, in general form, that is parallel to $5 y=3 x-1$ and passes through the point, $\boldsymbol{P}(\mathbf{8},-2)$.
