

## Equations of Lines

Possible forms for linear equations

1. *Slope-intercept form:*  $y = mx + b$
2. *Point-slope form v.1:*  $y - y_1 = m(x - x_1)$
3. *Point-slope form v.2:*  $y = y_1 + m(x - x_1)$
4. *General form:*  $ax + by = c$
5. *Slope definition:*  $(y - y_1)/(x - x_1) = m$
6. *Intercept form:*  $x/a + y/b = 1$
7. *Factored form:*  $y = a(x - b)$

In pairs, decide the form you would expect students to use when writing the equation of the line for each of the following given information. Explain your thinking.

- a) the line through (0,5) and (3,-1)
  
- b) a line parallel to  $5x + 3y = 6$
  
- c) line perpendicular to  $5x + 3y = 6$
  
- d) a line parallel to  $y = -1 - \frac{1}{2}(x - 3)$
  
- e) the line where

$$\frac{f(3) - f(7)}{3 - 7} = -\frac{1}{2}$$

- f) the tangent line to a curve at (3, -1) passing through (7, -3)