Applications of Linear Models: Finding The Equation Of A Line

1. Find the equation of a line when given slope and y intercept
Strategy: Use slope intercept form of a line

a. A long distance telephone carriers (for landline phones) has a monthly charge of $20 plus charges of $.05 per minute for calls.

b. A car rental company charges $243 for a one-way rental from NY to Boston, with an additional charge of 19 cents per mile.

c. The value of a piece of manufacturing equipment is $66000 and decreases at the rate of $3000 per year.

2. Find the equation of a line when given slope and one point on the line
Strategy: Use point slope form of a line

a. It costs $10 to ship 3 books from an online bookstore; for every additional book the total shipping cost increases by $2.

b. It costs Sugar & Spice Bakery $200 to make 120 cupcakes; for every additional 12 cupcakes, it costs $9.

3. Find the equation of a line when given two points on the line
Strategy: Use both points to find the slope of the line
**   Then use the slope and either one of the points to write the point-slope form of a line**

a. Keisha makes jewelry and sells it online on Etsy. It costs her $350 to produce 10 bracelets and it costs her $950 to produce 40 bracelets.

b. A sports team wants to sell tee shirts for a special event. A tee shirt manufacturer says it would cost $20000 to produce 1000 of the tee shirts and it would cost $50000 to produce 3000 tee shirts.

c. The value of a piece of machinery is $50000 at the end of 5 years and $35000 at the end of 8 years.