**Finding and Using Linear Functions**

To do these problems, choose among the three forms of linear equations we have studied:

Slope-Intercept Form: $y=mx+b$

Standard Form: *Ax* + *By* = *C*

Point-Slope Form: $y-y\_{1}=m(x-x\_{1})$

1. **Pedro’s Parking Ticket**

Pedro thought he could just run into the store for a minute, so he didn’t put any money in the parking meter. He got a ticket for $25 due one week later. The ticket said that it would be an additional $13.00 for each day it was paid late.

1. Define the variables and write an equation that represents the total fine for any number of days late paying the ticket.
2. Use the equation to find the amount Pedro must pay if he is six days late.
3. When Pedro finally goes to the Town Clerk to pay the bill he has to pay $155.00. How many days late was he?
4. **Tahira’s Taxicab Ride**

In Boston taxicabs charge an initial fare and an additional amount for every mile traveled. Tahira is having trouble figuring out how the system works. She paid $7.00 for a two-mile ride one day and she paid $24.50 for a nine-mile ride the next day.

1. What is the independent variable? What is the dependent variable?
2. Use the data given to find the amount the taxis charge per mile.
3. Write an equation relating the two variables.
4. Use the equation to find how much a 15-mile taxicab ride would cost.
5. What is the slope and what does it mean in this situation?
6. What is the initial price Tahira has to pay before she has traveled anywhere? Explain.
7. **Car Wash**

The Outdoor Adventure Club at Eisenhower High School needs to raise money for their trip to Mountain Classroom, so they plan several fund raising events. The first one is a car wash. The total cost of sponges, soap, and other materials was donated by a local car dealership. They plan to charge $4.50 for each small car they wash and $8 for each large car or SUV. In the end they raised $420 for their trip.

1. Define the variables and write an equation to show how the money they raised is related to the two types of cars that they washed.
2. What is the *y*-intercept and what does it mean in this situation?
3. What is the *x*-intercept and what does it mean in this situation?
4. What is the slope and what does it mean in this situation?

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1. **Writing Equations**

Write equations in point-slope form, slope-intercept form, or standard form for the line that passes through each pair of points. Try to use at least two forms of the equation for each pair.

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|  | **Pair of Points** | **Point-slope form** | **Slope-intercept form** | **Standard form** |
| a. | (5, 3) and (7, 9) |  |  |  |
| b. | (0, 8) and (3, 0) |  |  |  |
| c. | (5, -3) and (-3, -4) |  |  |  |
| d. | (-1, 2) and (0, 6) |  |  |  |
| e. | (4, 9) and (0, 9) |  |  |  |