

Solve each problem *first* before peeking at the solutions at the end of the file.

<http://faculty.nwfsc.edu/web/math/storyd>

All class assignments and other announcements will be posted on this web site.

1. Let  $P(-4, 2)$  and  $Q(2, -3)$  be two points in the plane.

(a) Find the distance  $d(P, Q)$  between  $P$  and  $Q$ .

(b) Find the midpoint  $M$  between  $P$  and  $Q$ .

2. Complete each of the two sentences below with correct entries.

(a) The function  $g(x) = |x + 2|$  can be graphed from the library function  $f(x) = |x|$  by shifting it \_\_\_\_ units \_\_\_\_\_ (horizontally/vertically) \_\_\_\_\_ (left/right/up/down).

(b) The function  $g(x) = 5 - x^2$  can be graphed from the library function  $f(x) = x^2$  by first reflecting it with respect to the \_\_\_\_ axis, then shifting it \_\_\_\_ units \_\_\_\_\_ (horizontally/vertically) \_\_\_\_\_ (left/right/up/down).

3. The circle  $x^2 + y^2 = 25$  passes through the point  $P(3, 4)$ . Let  $\ell$  be the line passing through the origin and the point  $P$ . Find the equation of the line perpendicular to line  $\ell$  and passing through point  $P$ .

4. If the slope of a line is negative, then the line is

increasing

decreasing

constant

none of these