

Math 130**Worksheet 1.9 and 1.10**

1. Find the midpoint M of the points $P(-1, 4)$ and $Q(2,3)$
2. Find the equation of the circle centered at M that passes through P and Q .
3. Find the center and the radius of the circle with the equation: $x^2 + 2x + y^2 - 5y = 10$
4. Sketch these equations, find the x - and y -intercepts and test for symmetry
 - a) $20x - 32y = 160$
 - b) $y = x^2 - 5$
 - c) $y = 3/x$
5. Find the slope and the equation of the line through each of the pairs of points P and Q :
 - a) $P(0,8)$; $Q(2,6)$
 - b) $P(1,11)$; $Q(10, 83)$
 - c) $P(4, 6)$; $Q(3, 10)$
6. Find the equation of the line with slope 7 and through the point $(-5,0)$

7. Find the equation of the line with x intercept (10,0) and y-intercept (0, 11).
8. Find the equation of the line through P(1, 2) which is parallel to the line $4x - 7y = 3$
9. Find the equation of the line perpendicular to $y = 3x - 7$ that passes through Q (2,6)
10. Find the equation of a vertical line through the point (4,11).
11. Find the equation of the line through P(5, -12) which is tangent to the circle $x^2 + y^2 = 169$.
Note that P is on the circle and so the tangent line is perpendicular to the radial line OP.