Lines and Circles

		Answers
1.	Find the distance between points (-3,2) and (-4, 5).	$\sqrt{10}$
2.	Find the midpoint between points (5,6) and (7,-3).	$(6, 3/2)$
3.	Find the slope of the line that contains points (7,-3) and (-2,5).	$\dfrac{8}{-9}$
4.	Graph the line that has slope 2 and goes through point (-1,3).	
5.	Find the x and y intercepts of the line with equation $3x - 2y = 7$.	$(7/3,0);\ (0,7/-2)$
6.	Find three points of the line $y = 3x - 2$.	$(0,-2),(1,1),(100,298)$
7.	Graph the line $y = -2x + 3$.	
8.	Find the y-intercept and the slope of the line with equation $y = 9x + 345$.	$m = 9;\ (0,345)$
9.	Find the y-intercept and the slope of the line with equation $3y - 6x = 7$.	$m = 2, b = 7/3$
10.	Find the equation of the line with slope 789, and y-intercept 345.	$y = 789x + 345$
11.	Find the equation of the line with y-intercept 4 and which goes through point (-1,2).	$y = 2x + 4$
12.	Find the equation of the line with slope 3 and which goes through point (1,-1).	$y = 3x - 4$
13.	Find the equation of the line that goes through points (0,3) and (1,5).	$y = 2x + 3$
14.	Find the equation of the line that goes through points (2,-5) and (1,3).	$y = -8x + 11$
15.	Graph the line $x = 3$.	
16.	Graph the line $y = 5$.	
17.	Find the equation of the horizontal line that goes through point $(3, -5)$.	$y = -5$
18I	Find the equation of the line that is parallel to line $2y - 4x = 549$ and goes through point (-1, 2).	$y = 2x + 4$

19	Find the equation of the line that is parallel to the $x - axis$ and goes through point (-3,4).	$y = 4$
20	Find the equation of the line that is perpendicular to the line $3y + x = 13$ and goes through point (-1,2).	$y = 3x + 5$
21	Find the equation of the line that is perpendicular to the $x - axis$ and goes through point (5,6).	$x = 5$
22	Find the equation of the circle that has radius 5 and center (-3,4).	$(x + 3)^2 + (y - 4)^2 = 25$
23	Find the equation of the circle that has radius $\sqrt{2}$ and goes through point (0,4).	$x^2 + (y - 4)^2 = 2$
24	Find the center and radius of the circle with equation: $(x - 5)^2 + (y + 3)^2 = 9$.	Center: (5,-3) Radius: 3
25	Find the center and radius of the circle with equation: $x^2 + y^2 - 10x + 12y - 1 = 0$.	Center: (5,-6) Radius: $\sqrt{62}$
26	Find the center and radius of the circle with equation: $x^2 + y^2 - 6x + 1 = 0$.	Center: (3,0) Radius: $\sqrt{8} = 2\sqrt{2}$

Formulas:

Distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Midpoint = $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
Slope = $\frac{y_2 - y_1}{x_2 - x_1}$
$y = mx + b$, equation of a line; m is $slope,$ b is $y - intercept$
$y = b,$ equation of a horizontal line
$x = a,$ equation of a vertical line
To $find$ the $x - intercept,$ set $y = 0$ To $find$ the $y - intercept, set$ $x = 0$
$(x - h)^2 + (y - k)^2 = r^2$, is the equation of a circle with center (h, k) and radius r.