

Week in Review # 1

MATH 141

Drost-Spring 2010

1.1 through 1.4

- Find the distance between $(-4, 3)$ and $(1, 5)$.
- Find the coordinates of the point(s) that are 10 units away from the point $(5, -6)$ and are on the x -axis.
- Find the equation of the circle whose center is $(6, -2)$ which passes through the point $(1, 1)$.
- Find the value of a such that the distance from $(-3, 3)$ to $(a - 1, 6)$ is 5.
- Graph: $y = \sqrt{1 - x^2}$
- Graph: $(x - 1)^2 + (y + 2)^2 \leq 4$
- Find the slope between $(-3, a+1)$ and $(a-1, -1)$
- Given $l_1 : 3x + 2y = 4$
 - Write the equation of l_2 in slope-intercept form, which is parallel to l_1 and passes through the point $(5, -1)$.
 - Write the equation of l_3 in general form, which is perpendicular to l_1 and passes through the point $(-2, 3)$.
- Find the value of a such that AB is perpendicular to CD. $A = (-2, 5)$, $B = (a + 2, 2)$, $C = (-1, -2)$, $D = (3, 6)$
- Write the equation of the horizontal line passing through the point (c, d) .
- Write the equation of the vertical line passing through the point (p, q) .
- Using data from professor P, 26% of the students taking exam 1 will earn a B on the test.
 - find an equation that expresses the relationship between s , the number of students taking exam one, and q , the number of students who earn a B.
 - if there are 150 students in the class, how many will earn a B?
 - if 91 students scored a B, how many students took the exam?
- A company has fixed costs of \$3500 and production costs of \$5 per item produced. The product sells for \$12/unit.
 - What is the cost function?
 - What is the revenue function?
 - What is the profit function?
 - What is the profit or loss when 1500 items are produced and sold?
- Company XYZ sells computers for \$1200 each. To produce fifty computers the total costs are \$44,350. The company spends \$845 to build each computer. Write the equation for the profit function.
- At a price of \$48, the quantity demanded is 650 units. At a price of \$60, the quantity demanded is 350. Given that it is linear,
 - find the demand equation.
 - At what price is there no demand?
 - What quantity is demanded if free?
- Producers will make 1000 refrigerators available when the unit price is \$210. At a unit price of \$260, 3000 refrigerators will be marketed.
 - Find the supply equation.
 - How many will be marketed when the price is \$310?
 - What is the lowest price at which a refrigerator will be marketed?
- Find the intersection of:
 $y = 3x + 20$ and
 $-y = 2x - 10$
- Find the break-even point if
 $C(x) = 6x + 1200$ and
 $R(x) = 10x$
- Rent-a-Van leases vehicles at \$35/day plus 25cent/mile. Rent-an-SUV leases vehicles at \$28/day and 50cent/mile.
 - Write a daily cost function for each company.
 - If the customer plans to drive 50 miles, which is less expensive?
 - How much cheaper is it?
- Given a demand equation $x + 3p - 600 = 0$ where X is the quantity demanded monthly, and p is the price in dollars. The supply equation is $x - 2p - 200 = 0$ where x is the quantity the supplier will provide when the price is p dollars.
 - Find the equilibrium price.
 - Find the equilibrium quantity.

ANSWERS:

- $\sqrt{29}$
- $(13, 0)$, $(-3, 0)$
- $(x - 6)^2 + (y + 2)^2 = 34$
- $a=2, -6$
- semi-circle (half circle) passing through the points $(-1, 0)$, $(0, 1)$, and $(1, 0)$

6. circle with center at $(1, -2)$ and radius of 2,
shading inside the circle

7. -1

8a. $y = -\frac{3}{2}x + \frac{13}{2}$

8b. $2x - 3y + 13 = 0$

9. $a = 2$

10. $y = d$

11. $x = p$

12. $Q = .26s$

12b. 39 students

12c. 350 students

13a. $C = 5x + 3500$

13b. $R = 12x$

13c. $P = 7x - 3500$

13d. \$7,000

14. $P = 355x - 2100$

15a. $p = -.04x + 74$

15b. \$74

15c. 1850 items

16a. $p = .025x + 185$

16b. $x = 5000$

16c. \$185.01

17. $(-2, 14)$

18. $(300, 3000)$

19. $C_{RV} = 35 + .25x$ $C_{SUV} = 28 + .50x$
RV is cheaper by \$5.50

20a. \$80

20b. 360 items