

MA 108R Intermediate Algebra
Exam II Review

1. State the quadratic formula that will give solutions to the general quadratic equation

$$ax^2 + bx + c = 0.$$

2. Solve:

a) $x^2 + 6x - 7 = 0$

b) $2x^2 - 7x + 2 = 0$

c) $2x^2 - 11x = -5$

d) $3x^2 - 3 = 13x - 1$

e) $4x^2 - 10x = 6$

3. Find the solutions (either by factoring or the quadratic formula):

a) $3x^2 + 8x - 3 = 0$

b) $x^2 + 6x - 10 = 0$

4. Find the discriminant of the following and tell how many solutions the equation has:

$$5x^2 + 10x + 5 = 0$$

5. In the following equations, is y a function of x ? (Justify your answers).

a) $x^2 + y^2 = 16$

b) $y = -2x + 3$

6. Find the slopes of the following lines:

a) passing through points $(\frac{5}{2}, -3)$ and $(\frac{-3}{2}, -1)$

b) parallel to $5x - 3y + \frac{1}{2} = 0$

c) perpendicular to $3x + 7y + 8 = 0$

7. Graph the line with slope $\frac{-2}{3}$ and y-intercept 5 (Remember to label the axes when you draw your coordinate system and put some number labels on the axes).
8. State the distance formula for the distance from the point $P_1(x_1, y_1)$ to the point $P_2(x_2, y_2)$.
9. What is the distance between $A(1, 3)$ and $B(2, 5)$.
10. Find an equation that describes all points on the x-axis that are 6 units away from $(1, 6)$.
11. Find the distance between the points $(\frac{1}{2}, 0)$ and $(0, \frac{\sqrt{6}}{5})$.

12. Sketch the graph of $x^2 + y^2 = 49$ (Remember to label the axes when you draw your coordinate system and put some number labels on the axes). State the center and radius.
13. Suppose that the cost C , in dollars, of producing and marketing x doughnuts is given by $C = .25x + 5000$.
- What is the marginal cost?
 - How much are the fixed costs?
 - What is the cost of producing 10,000 doughnuts.
14. Let f be the function defined by

$$f(x) = \frac{1}{x^4 + 1}.$$

Compute:

- a) $f(2)$ b) $f(\sqrt{2})$ c) $f(0)$ d) $f\left(\frac{1}{2}\right)$