

Math 171
Graphs, Functions, and Models Worksheet

Write the equation of the line:

1. Slope = 3, passing through (1, 4).
2. Passing through (3, -1) and (-2, 3).
3. Parallel to the line $2x - 3y = 7$ passing through (-1, 2).
4. Perpendicular to the line $x + y = 4$ passing through (-1, -1)

Find the distance and midpoint between the points:

5. $(2\sqrt{3}, -2), (-3\sqrt{3}, 3)$
6. $(\frac{1}{7}, -\frac{3}{4}), (-\frac{5}{3}, 2)$

Give the equation of the circle:

7. Center (3, -1), radius = 3

Give the center point and the radius of the circle:

8. $x^2 + y^2 - 4x + 8y - 2 = 0$

Evaluate the function:

9. $f(x) = x^2 + 3x + 2$; $f(x + 1)$

Find the domain of the function:

10. $\frac{x + 3}{x^2 + 6x + 5}$

State where the function is increasing, decreasing, or constant, state relative minimums and maximums, and state the domain and range of the function:

11. $f(x) = x^3 + 4x^2 - 8x + 2$

12. $f(x) = |x^2 - 4|$

State the translation from $f(x)$ to $g(x)$:

13. $f(x) = x^3$; $g(x) = -(x + 2)^3 + 1$

Give the $(f + g)(x)$, $(f - g)(x)$, $(fg)(x)$, $(f/g)(x)$, $(f \circ g)(x)$, $(g \circ f)(x)$. State the domain of the function:

14. $f(x) = x^2 + 3$; $g(x) = \sqrt{x + 1}$

15. $f(x) = (x - 2)^2 + 4$; $g(x) = 1/x + 2$

Find the inverse of the function:

16. $f(x) = (x + 2)^3 + 4$