

Practice Exam 1, Math 1113, Precalculus, Fall 2007

Print Your Name:

- (1) No calculator with a CAS on it such as the TI-85 or TI-92.
- (2) In some problems you will need to circle more than one alternatives.
- (3) Most problems will be multiple choice.
- (4) There will be 20 problems.

1. Find the difference quotient for $f(x) = x^2 - 5x$.

A) $2x - 5 + h$ B) $2x - 5h + h^2$ C) $x - 5$ D) $2x + 5 + h$ E) None of these

2. Let $f(x)$ be the function defined by the graph in Problem 39 on page 164. Find $2f(4) - f(-2)$.

3. Find the slope of the line passing through points $(-3, 4)$ and $(-4, -2)$.

4. Let m, b be the slope and y -intercept of $3x - 2y - 6 = 0$. What is mb ?

5. Find an equation of the line that is parallel to $3x + y - 5 = 0$ and passes through $(1, 4)$.

6. Let $f(x) = \sqrt{2x}$ and $g(x) = f(x + 3)$. Find $g(0)$

7. Choose two lines that are parallel to each other.

A) $y - 2x = 1$ B) $y = -2x + 1$ C) $y + x = 1$ D) $y = \frac{1}{2}x + 1$ E) $2x - y = 1$

8. Find the function that is the vertical translation of $y = \sqrt{2x - 1}$ down by 1.

9. Find the function that is a horizontal translation of $y = \sqrt{2x - 1}$ to the left by 1.

10. Let $f(x) = x^2 - 2x$ and $g(x) = \sqrt{x}$. Find $(f - g)(1)$.

11. Let $f(x) = x^2 - 2x$ and $g(x) = \sqrt{x}$. Find $(fg)(2)$.

12. Find the inverse function of $f(x) = 2x + 3$.

13. The domain of $f(x) = \frac{3x+2}{x^2-2x-3}$ consists of intervals. Find them all.
14. Let $f(x) = \frac{2}{x+1}$ and $g(x) = \frac{3}{x}$. Find $(f \circ g)(3) - 2(f \circ f)(1)$.
15. Find the distance between $(1, -2)$ and $(-3, 2)$.
16. Find the standard form of $\frac{1+2i}{1-i}$.
17. Solve $3x^2 - 2x + 4 = 0$.
18. Find the vertex of $f(x) = 2x^2 - 4x + 1$.
19. Find the axis of symmetry of $f(x) = 2x^2 - 4x + 1$.
20. Find all zeros of $f(x) = x^3 + 2x^2 - 4x - 8$.
21. Find the quotient and remainder when $6x^4 + 5x^3 + 3x - 5$ by $3x^2 - 2x$.
22. Find the quotient and remainder when $5x^3 + 3x - 5$ by $x - 2$.