
MATH 11010: Exam #2 (Fall 2011)

1. Let $H(x) = 7\sqrt{4x+3} - 9$. Find nontrivial functions f and g such that

$$(f \circ g)(x) = H(x)$$

2. Simplify $(4 - 3i)^2$. Write answer in the form $a + bi$, where a and b are real numbers.

3. Let $f(x) = 2x^2 - 3x + 1$ and $g(x) = 5x - 2$. Find and simplify:

(a) $(f \circ g)(x) =$ (b) $(g \circ f)(x) =$ (c) $(f \circ f)(2) =$

4. For $f(x) = 6 + 2x - 4x^2$ find

$$\frac{f(x+h) - f(x)}{h}$$

5. Solve: $2(3x+5)^2 - 56 = 0$

6. Solve: $16x^4 + 16x^2 - 21 = 0$

7. Solve: $12x^2 + 8x + 28 = 0$

8. Solve: $2x^{1/2} + 5x^{1/4} - 3 = 0$

9. Solve: $\frac{x+2}{x-2} + \frac{5}{x+5} = \frac{28}{x^2+3x-10}$

10. Solve: $x - 1 = \sqrt{5x+9}$

11. Solve: $27x^3 - 18x^2 - 15x + 10 = 0$

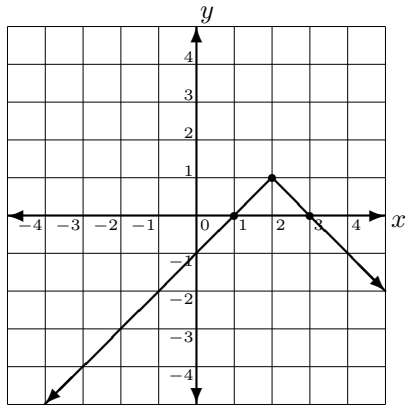
12. Solve: $4|5x+7| - 3 = 17$

13. Solve: $3x(3x+2) = 7$

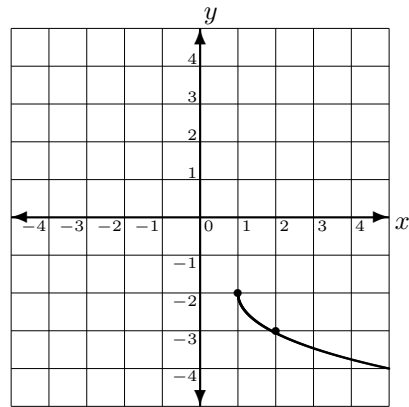
14. Solve: $(5x^2 - 2x)^2 - 4(5x^2 - 2x) + 3 = 0$

15. Determine the equation of the given graph of a function. (Note there are no vertical or horizontal stretches or shrinks.)

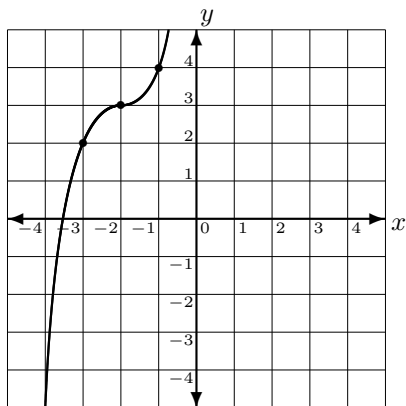
(a)



(c)



(b)



(d)

