

Math 201 Quiz 2B

September 4, 2019

Name: ANSWERS

Instructions: No calculators. Use your own scrap. Write your fully simplified answers in the space provided.

1. Expand and simplify  $(\sqrt{x} - 2)^2 = \underline{x - 4\sqrt{x} + 4}$

2. Factor each expression.

(a)  $3y^4 + 10y^2 + 3 = \underline{(3y^2 + 1)(y^2 + 3)}$  (b)  $81x^4 - 16y^4 = \underline{(3x - 2y)(3x + 2y)(9x^2 + 4y^2)}$

(c)  $x^4 - 8x = \underline{x(x - 2)(x^2 + 2x + 4)}$

3. Complete the square:  $3x^2 + 12x + 7 = \underline{3(x + 2)^2 - 5}$

4. Solve the inequality (Write your solution in interval notation):  $\frac{x+7}{2x+12} + \frac{6}{x^2-36} \geq 0$ .

Answer:  $x \in \underline{(-\infty, -6) \cup (-6, 5] \cup (6, \infty)}$

5. If  $f(x) = \sqrt{x}$ , find, rationalize and simplify  $\frac{f(x+h)-f(x)}{h} = \underline{\frac{1}{\sqrt{x+h} + \sqrt{x}}}$

6. Find the domain. Write in interval notation:  $g(x) = \frac{\sqrt{2-x}}{\sqrt{1-x^2}}$  D:  $\underline{(-1, 1)}$

7. If  $f(x) = 3x^2 - x + 4$  and  $g(x) = 2x - 1$ , find and simplify  $f \circ g = \underline{12x^2 - 14x + 8}$

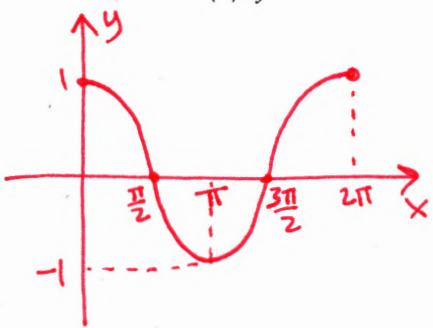
8. Find the exact values.

(a)  $\sin \frac{\pi}{3} = \underline{\frac{\sqrt{3}}{2}}$  (b)  $\cos \left(\frac{7\pi}{4}\right) = \underline{\frac{\sqrt{2}}{2}}$  (c)  $\sec \frac{5\pi}{6} = \underline{-\frac{2}{\sqrt{3}}}$

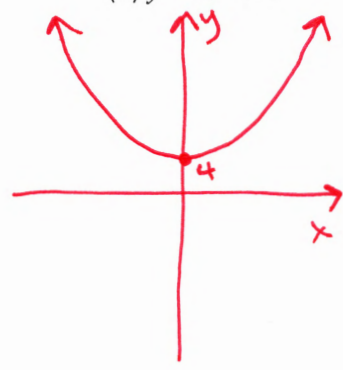
9. Find all values of  $x$  such that  $\cos 2x = \cos x$  for  $0 \leq x \leq 2\pi$ .  $x = \underline{0, \frac{2\pi}{3}, \frac{4\pi}{3}, 2\pi}$

10. Sketch the graphs of the given functions.

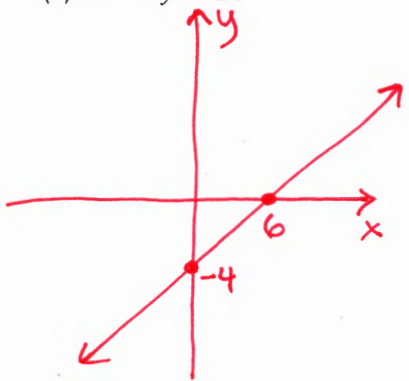
(a)  $y = \cos x$



(b)  $y = x^2 + 4$



(c)  $4x - 6y = 24$



(d)  $y = \sqrt{x - 1}$

