

Mathematics 249, Quiz 1

NAME

SIGNATURE

1 An open box is made from a sheet of cardboard 10 inches square by cutting small squares of side x from the corners and folding up the sides. The volume $V(x)$ of this box is $V(x) = (10-2x)^2 x$

2 Let $6x^2 + ky^2 + 2x + 4y + 1 = 0$ be the equation of a circle. Then, $k = 6$.

3 The x -coordinate of the vertex of the parabola $y = Ax^2 + Bx + C$ is given by $x = -\frac{B}{2A}$

4 Let $x = -3.427$. Then $\sqrt{x^2} = 3.427$

5 If $\left| \frac{2x-1}{2x+4} \right| = 1$ then the possible values for x are $x = -\frac{3}{4}$

6 Let $|x-6| \leq 2$. Then the possible values for x are all x in $[4, 8]$

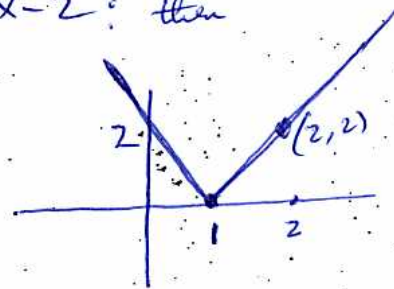
7 If the slope of the line joining the point $(2, 2)$ to the point $(3, 4)$ is 4 then $y = 6$

8 Let $f(x) = \frac{1}{1+x}$, $x \neq -1$. Let $g(x) = \frac{1}{1-x}$, $x \neq 1$

② Then the value of $g \circ f$ at $x=0$ is Undefined

9 Draw the graph of $y = |2x-2|$

② First, draw the graph of $y = 2x-2$: then reflect where the graph is negative

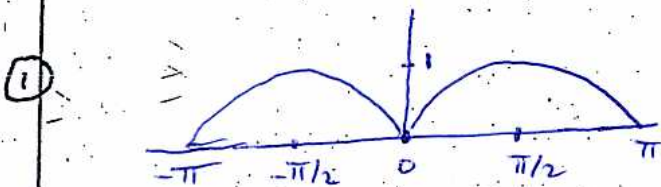


10 The equation of the line joining $(0, -2)$ to $(1, 0)$ is given by

① $y - (-2) = (\text{slope})(x - 0)$
 $y + 2 = mx$, $m = \frac{0 - (-2)}{1 - 0} = 2$

$y = 2x - 2$

11 Draw the graph of $y = |\sin x|$, $-\pi \leq x \leq \pi$



12 Answer as True (T) or False (F)

③ (a) There is no function which is both even and odd.

F

(b) If g is even then $f \circ g$ is even

T

(c) Let $g(x)$ be any function and put $f(x) = g(x) + g(-x)$

T