

Name: _____

1. How are the graphs of the functions obtained from the graph of f ?

(c) $y = f(x) + 1$, **Answer:** Shift up by 1.

(d) $y = f(x + 1)$. **Answer:** Shift to the left by 1.

2. For which x is the function $f(x) = -2x(4 - x)^{-1/2}$ not defined?

Answer: The answer depends on whether we allow our functions to take complex values. If not, the answer is $x \in [4, \infty)$. If so, the answer $x = 4$. I accepted both answers. However, in the future, we will usually restrict attention to real-values in this class.

3. If $f(x) = x^2$, what is the function $f \circ f$? **Answer:** $f \circ f(x) = x^4$

4. If $f(x) = x^2 - 1$, what is the function $f \circ f$? **Answer:** $f \circ f(x) = x^4 - 2x$

5. For $f(x) = \sin x$, find all y such that there exists some x with $y = f(x)$. (That is, find the range of f). Express the answer as an interval. **Answer:** $[-1, 1]$

6. Express 60 degrees in radians. **Answer:** $\pi/3$

7. Express $\pi/3$ radians in degrees. **Answer:** 60

8. What is $\cos \pi/3$? **Answer:** $1/2$. Use “SOH CAH TOA” and consider the 30-60-90 triangle with hypotenuse of length 1.

9. What is $\sin \pi/3$? **Answer:** $\frac{\sqrt{3}}{2}$.