

0. THE FINAL EXAM FOR THIS CLASS IS

MON/WED CLASS: 10:00 – 11:50 MONDAY, MAY 6

TUE/THU CLASS: 12:30 – 2:20 THURSDAY, MAY 9

WHEN IS THE FINAL EXAM FOR THIS CLASS?

WRITE IT (THE WHOLE THING!) HERE → _____ (+1pt)

IMPORTANT: YOU MAY USE ONLY THE METHODS DISCUSSED IN CLASS. IF YOU USE METHODS NOT DISCUSSED IN CLASS OR IF YOU DO NOT SHOW YOUR WORK IN A NEAT AND ORDERLY FASHION, YOU FORFEIT YOUR CLAIM TO ANY CREDIT.

I. MULTIPLE CHOICE. WRITE IN THE BLANK SPACE THE LETTER CORRESPONDING TO THE CORRECT RESPONSE. PLEASE USE **ONLY CAPITAL LETTERS**. NOTE THAT THE SYMBOL " $\mathbb{R}$ " REPRESENTS "ALL REAL NUMBERS".

1. _____ WHAT IS THE HORIZONTAL SHIFT FOR THE FUNCTION $f(x) = \sqrt[3]{x-3} + 5$?
A. LEFT 3 B. RIGHT 3 C. UP 5 D. IT HAS NO HORIZONTAL SHIFT E. NONE OF THESE
2. _____ WHAT IS THE VERTICAL SHIFT FOR THE FUNCTION $y = f(x+4) + 2$?
A. UP 4 B. DOWN 4 C. DOWN 2 D. IT HAS NO VERTICAL SHIFT E. NONE OF THESE
3. _____ WHAT IS THE DOMAIN OF THE FUNCTION $f(x) = 3x^3 + 2x$?
A. $[0, \infty)$ B. $[\frac{3}{2}, \infty)$ C. $\mathbb{R}$ D. IT HAS NO DOMAIN E. NONE OF THESE
4. _____ WHAT IS THE COORDINATES OF THE VERTEX OF THE FUNCTION $f(x) = |x+2| + 5$?
A. (2,5) B. (-2,-5) C. (-2,5) D. IT HAS NO VERTEX E. NONE OF THESE
5. _____ WHAT IS THE RANGE OF THE BASIC SHAPE SQUARE FUNCTION?
A. $[0, \infty)$ B. $(0, \infty)$ C. $\mathbb{R}$ D. $\{0, \infty\}$ E. NONE OF THESE
6. _____ WHAT IS THE DOMAIN OF THE FUNCTION $f(x) = \cot_1(x)$?
A. $[0, \infty)$ B. $(0, \infty)$ C. $\mathbb{R}$ D. $\{1\}$ E. NONE OF THESE
7. _____ WHAT IS THE DOMAIN OF THE FUNCTION $f(x) = \sqrt{x-2}$?
A. $\mathbb{R} - \{2\}$ B. $[-2, \infty)$ C. $[2, \infty)$ D. $\mathbb{R}$ E. NONE OF THESE
8. _____ WHAT IS THE HORIZONTAL SHIFT FOR THE FUNCTION $f(x) = x^2 + 7$?
A. LEFT 7 B. RIGHT 7 C. UP 7 D. IT HAS NO HORIZONTAL SHIFT E. NONE OF THESE
9. _____ FOR THE FUNCTION $f(x) = 6(x+4)^2 - 3$, TO WHAT DOES THE "-3" CORRESPOND?
A. AMPLITUDE B. HORIZONTAL SHIFT C. VERTICAL SHIFT
D. ASYMPTOTE E. NONE OF THESE
10. _____ WHICH PAIR OF FUNCTIONS HAVE THE SAME RANGE AS THE FUNCTION $f(x) = \text{abs}(x)$?
A. $f(x) = \text{cube}(x)$ & $f(x) = \text{sqrt}(x)$ B. $f(x) = \text{sqr}(x)$ & $f(x) = \text{sqrt}(x)$
C. $f(x) = \text{recip}(x)$ & $f(x) = \text{sqr}(x)$ D. $f(x) = \text{sqrt}(x)$ & $f(x) = \text{semi}(x)$
E. NONE OF THESE.

CONTINUE GRAPHING.

16. $f(x) = \sqrt{x+4} - 1$

17. $f(x) = |x+2| + 3$

III. DETERMINE THE DOMAIN OF EACH FUNCTION. SHOW YOUR WORK AS DEMONSTRATED IN CLASS.

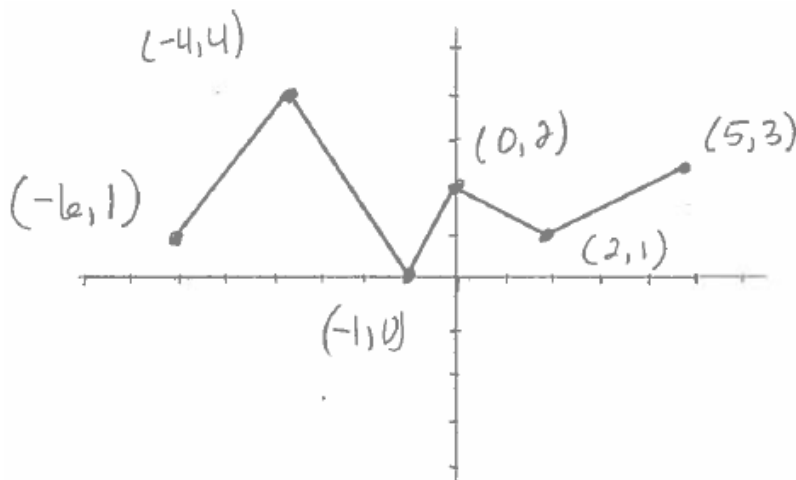
18. $f(x) = \sqrt{x-7}$

19. $f(x) = \frac{x^3 + x}{5x - 15}$

20. $f(x) = 3x^2 + 8$

21. $f(x) = \frac{5-x}{x^2-16}$

V. FOR THE GIVEN GRAPH OF $y = f(x)$ BELOW, SKETCH THE GRAPHS OF THE TRANSFORMED FUNCTIONS



BE SURE TO LABEL ALL POINTS YOU PLOT.

22. $y = f(x-2)+1$

