

PHONES OFF!!

I. THE FINAL EXAM FOR THIS CLASS 8:00 – 9:50, MONDAY, DECEMBER 10, 2018

WHEN IS THE FINAL EXAM FOR THIS CLASS? (INCLUDE THE TIME, WEEKDAY, AND DATE.)

WRITE IT HERE. → _____

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 $f(x) = \sqrt[3]{x+2} + 5$?
A. LEFT 2 B. RIGHT 2 C. UP 5 D. IT HAS NO HORIZONTAL SHIFT E. NONE OF THESE
2. _____ WHAT IS THE VERTICAL SHIFT FOR THE FUNCTION $y = f(x+2) + 4$?
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 $f(x) = \cot_1(x)$?
A. $[0, \infty)$ B. $(0, \infty)$ C. $\mathbb{R}$ D. $\{1\}$ E. NONE OF THESE
4. _____ WHAT IS THE DOMAIN OF THE FUNCTION $f(x) = \sqrt{x-2}$?
A. $[0, \infty)$ B. $[-2, \infty)$ C. $[2, \infty)$ D. $\mathbb{R}$ E. NONE OF THESE
5. _____ 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
6. _____ 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
7. _____ 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.
8. _____ 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
9. _____ 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
10. _____ 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

11. OMIT WHICH FUNCTION'S GRAPH IS THE REFLECTION OF THE GRAPH OF $y = f(x)$ ACROSS THE y -axis?

- A. $y = f(-x)$ B. $y = -f(x)$ C. $y = -f(-x)$ D. THIS CANNOT OCCUR E. NONE OF THESE.

12. _____ WHAT IS THE DOMAIN OF THE FUNCTION $f(x) = \frac{x-1}{x^2-9}$?

- A. $\mathbb{R}$ B. $\mathbb{R} - \{3\}$ C. $\mathbb{R} - \{-3, 3\}$ D. $\mathbb{R} - \{-3, 1, 3\}$ E. NONE OF THESE

FROM THIS POINT FORWARD, IF YOU DO NOT SHOW YOUR WORK IN A NEAT AND ORDERLY FASHION, YOU FORFEIT YOUR CLAIM TO ANY CREDIT.

III. SKETCH THE GRAPH OF EACH BASIC SHAPE FUNCTION. YOU NEED **NOT** PLOT OR LABEL ANY POINTS. ALSO, FOR EACH FUNCTION, **STATE THE DOMAIN AND RANGE.**

13. (A) $f(x) = \sqrt[3]{x}$

(B) THE RECIPROCAL FUNCTION

(C) $f(x) = \text{abs}(x)$

III. SKETCH THE GRAPH OF EACH FUNCTION, SHOWING ALL YOUR WORK AS DEMONSTRATED IN CLASS. **LABEL ALL POINTS YOU PLOT!** IF YOU DO NOT SHOW YOUR WORK IN A NEAT AND ORDERLY FASHION, YOU FORFEIT YOUR CLAIM TO ANY CREDIT.

14. $f(x) = x^2 - 1$

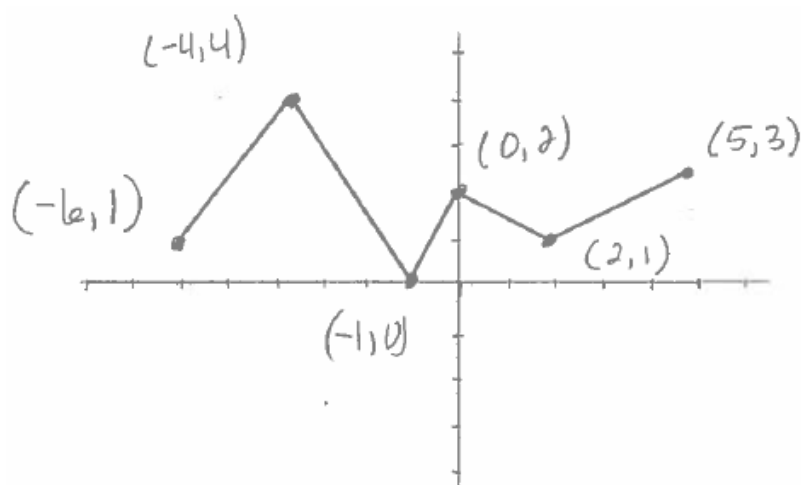
15. $f(x) = -|x| + 4$

CONTINUE GRAPHING.

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

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

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.

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

21. $y = -f(x)$