

3-2 Composite Functions and Domain

Name: _____

Time Start: _____ Finish: _____ Total Time = _____

Let $f(x) = 3x - 2$ $g(x) = x + 10$ $h(x) = 5x$

Find each value below.

1. $f(g(4)) =$ _____

2. $g(h(-3)) =$ _____

3. $h(g(3)) =$ _____

4. $g(f(2)) =$ _____

5. $g(f(0)) =$ _____

6. $h(g(2)) =$ _____

7. $g(h(10)) =$ _____

8. $f(g(3)) =$ _____

State the domain of each function below.

9. $f(x) = \frac{4+x}{x}$ Domain = _____

10. $f(x) = 8x - 2$ Domain = _____

11. $f(x) = \frac{x^2 - 2}{2x + 9}$ Domain = _____

12. $f(x) = \sqrt{x}$ Domain = _____

13. $f(x) = \sqrt{x-3}$ Domain = _____

14. $f(x) = x^2 - 5$ Domain = _____

15. $f(x) = \sqrt{x+8}$ Domain = _____

16. $f(x) = \sqrt{2x-1}$ Domain = _____

17. $f(x) = \frac{x-2}{x+7}$ Domain = _____

18. $f(x) = \frac{x-9}{x^2+4x+3}$ Domain = _____

SAT Questions

- _____ **19.** Let $f(a, b) = a^2 - b^2$. If $f(5, d) = 9$, what is the positive value of d ?
- _____ **20.** If $f(4) = 8$ and $f(5) = 17$, then which of the following could be $f(x)$?
A. $x + 4$ B. $2x$ C. $4x - 3$ D. $x^2 - 8$ E. $x^2 - 4$
- _____ **21.** If $f(g(a)) = 6$, $f(x) = \frac{x}{2} + 2$, and $g(x) = |x^2 - 10|$, which of the following is a possible value of a ?
A. $\sqrt{2}$ B. $\sqrt{3}$ C. 2 D. 6 E. 18
- _____ **22.** If $f(2) = 10$ and $f(4) = 44$, which of the following could be $f(x)$?
A. $2x + 6$ B. $2x^2 + 12$ C. $2x^3 + 2$ D. $2x^3 - 4x$ E. $3x^2 - x$
- _____ **23.** For all x , let $f(x) = (10 - x)^2$. If $p = f(6)$, which of the following is equal to $4p$?
A. $f(24)$ B. $f(18)$ C. $f(12)$ D. $f(8)$ E. $f(4)$