

MATH 120: SECTION 2.3 EXERCISES

1. Let $f(x) = x^3 + 2x^2 - 3$.

(a) Find $f(0)$, $f(3)$, and $f(-3)$

(b) Find $f(1/a)$ and $f(-x)$

2. Let $g(t) = t - \frac{1}{t}$.

(a) Find $g(1)$, $g(-1)$, and $g(3/2)$

(b) Find $g(a+3)$ and $g(1/a)$

19. $u(x) = \sqrt{\frac{x^2 - 3x}{x + 2}}$

20. $v(x) = \sqrt{x-4} + \sqrt{x+8}$

21. $w(x) = \sqrt{x-4} + \sqrt{12-x}$

22. $z(x) = \sqrt[3]{x-2} + \sqrt[4]{x^2-9} + \sqrt[6]{2x-1}$

For #3 – 8, find the domain and range of the function.

3. $f(x) = x^2 + 1$ for $-4 \leq x \leq 3$

4. $f(x) = 2 - 3x$ for $-3 \leq x \leq 7$

5. $f(x) = \sqrt{7-4x}$

6. $f(x) = \sqrt{x^2 - 25}$

7. $f(x) = |x - 8| - 5$

8. $f(x) = 6/x$

For #9 – 22, find the domain of the function (*not* the range).

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

10. $g(x) = \sqrt{x} + 13$

11. $h(x) = \sqrt[4]{x-6} - 9$

12. $j(x) = \sqrt{2x^2 + 5x - 3}$

13. $k(x) = \frac{x-4}{x+5}$

14. $\ell(x) = \frac{1}{x^2 + 6x - 27}$

15. $p(x) = \frac{x-4}{x^2 - 16}$

16. $q(x) = \frac{x^2}{\sqrt{5-x}}$

17. $r(x) = \frac{81}{\sqrt{x^2 + 2x - 3}} + 3x$

18. $s(x) = \sqrt[6]{\frac{x+1}{x-4}}$