Algebra 2

5-Review

Take this test as you would take a test in class. When you are finished, check your work against the answers.

5-01

1. Evaluate $\sqrt[4]{150}$ using a calculator. Round the result to two decimal places if appropriate.
2. Evaluate $25^{\frac{3}{2}}$ using a calculator. Round the result to two decimal places if appropriate.
3. Solve $128 = 2(x-1)^6$

5-02

Simplify the expression. Assume all variables are positive.

4. $q^{\frac{7}{3}} \cdot q^{\frac{2}{3}}$
5. $\frac{x^{10}}{3x^6}$
6. $\sqrt[3]{81} + \sqrt[3]{24}$
7. $\sqrt[5]{64x^8y^{10}}$

5-03

Graph the function. Then state the domain and range.

8. $y = -2\sqrt[3]{x} + 1$
9. $y = \sqrt{x-2} - 3$
10. Describe the transformations to get $g(x) = 2\sqrt[3]{x+3}$ from $f(x) = \sqrt[3]{x}$.

5-04

Solve the equation.

11. $\sqrt{x+2} = 10$
12. $2\sqrt[3]{3x-4} = 6$
13. $(x+3)^{\frac{2}{3}} - 3 = 1$
14. $\sqrt{x+10} = x+1$
15. The volume of a sphere is given by $V = \frac{4}{3}\pi r^3$, where V is the volume and r is the radius of the sphere. Find the radius of a sphere with a volume 4 ft^3.

5-05

Let $f(x) = x + 2$, and $g(x) = x^2$. Perform the indicated operation.

16. $f(x) - g(x)$
17. $f(x) \cdot g(x)$

5-06

18. $f(g(x))$
19. $g(f(x))$

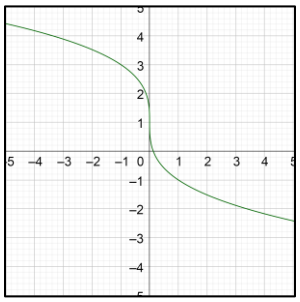
5-07

Find the inverse of the function.

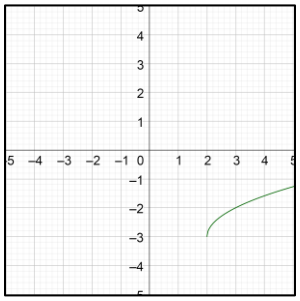
20. $f(x) = 64x^3$
21. $g(x) = x^{10} - 2, x \leq 0$
22. $h(x) = 2(x)^4, x \geq 0$

Answers

1. 3.50
2. 125
3. $-1, 3$
4. q^3
5. $\frac{x^4}{3}$
6. $5\sqrt[3]{3}$
7. $2xy^2\sqrt[5]{2x^3}$
8. D: All real; R: All real



9. D: $x \geq 2$; R: $y \geq -3$



10. Vertical stretch by factor of 2 and translate 3 left
11. 98
12. $\frac{31}{3}$
13. 5
14. $\frac{-1+\sqrt{37}}{2}$ ($\frac{-1-\sqrt{37}}{2}$ is extraneous)
15. 0.98 ft
16. $-x^2 + x + 2$
17. $x^3 + 2x^2$
18. $x^2 + 2$
19. $x^2 + 4x + 4$
20. $y = \frac{\sqrt[3]{x}}{4}$
21. $y = -\sqrt[10]{x+2}$
22. $y = \sqrt[4]{\frac{x}{2}}$