

Honors Algebra 2
Chapter 7 Review Sheet
Actual test has 25 questions

Simplify

1. $\frac{\sqrt{12x^7y^3}}{2x^3y\sqrt{3xy}}$

2. $\frac{3\sqrt[3]{32x^9y^4}}{6x^3y\sqrt[3]{4y}}$

3. $\frac{-3\sqrt[3]{-64x}}{12\sqrt[3]{x}}$

4. $\frac{\sqrt[4]{54xy^5}}{y\sqrt[4]{54xy}}$

5. $\frac{\sqrt{16x^2+8x+1}}{4x+1}$

6. $\frac{\sqrt{\frac{5}{4}}}{\frac{\sqrt{5}}{2}}$

7. $\frac{\frac{5}{\sqrt{2}}}{\frac{5\sqrt{2}}{2}}$

8. $\frac{\frac{6}{\sqrt{2x}}}{\frac{3\sqrt{2x}}{x}}$

9. $\frac{3}{2-\sqrt{3}} \quad 6+3\sqrt{3}$

10. Approximate using your calculator:

$\sqrt[2]{752} - 56^{3/4} - \sqrt[3]{75} \quad \approx -22.601$

Add

11. $7\sqrt{3} + 4\sqrt{3} - 4\sqrt{3} \quad 7\sqrt{3}$

12. $3\sqrt{2} + 5\sqrt{18} - 2\sqrt{128} \quad 2\sqrt{2}$

13. $2\sqrt{10} - 4\sqrt{5} + 2\sqrt{20} - 4\sqrt{40} \quad -6\sqrt{10}$

Multiply

14. $(\sqrt{x}-2)(\sqrt{x}+4) \quad x + 2\sqrt{x} - 8$

15. $(x-\sqrt{3})^2 \quad x^2 - 2x\sqrt{3} + 3$

Express in radical form

15. $x^{5/3} \quad \sqrt[3]{x^5}$

Express using rational exponents

16. $\sqrt[4]{x^3y^5} \quad x^{3/4} y^{5/4}$

Evaluate or simplify each expression

17. $27^{2/3} \quad 9$

18. $(8x^6y^{-9})^{-2/3} \quad \frac{y^6}{4x^4}$

19. $\sqrt[4]{9x^2y^6} \quad y\sqrt{3xy}$

Write as a single radical expression

20. $x^{1/3}y^{3/4}z^{5/6} \quad \sqrt[12]{x^4y^9z^{10}}$

Solve

21. $\sqrt{1-3x}-3=4 \quad x=-16$

22. $7+\sqrt{5x+4}=0 \quad \text{No Solution}$

23. $\sqrt[3]{5x+2}=\sqrt[3]{-8} \quad x=-2$

24. $(\sqrt{x-9})^2 - (9-\sqrt{x})^2 \quad x=25$
 $x-9 = 81 - 18\sqrt{x} + x$
 $-90 = -18\sqrt{x}$
 $5 = \sqrt{x}$

25. $\sqrt{x-3}-3>1 \quad x>19$

26. If $f(x) = 3x + 7$ and $g(x) = 2x - 5$, what is $[g \circ f](-3)$? $= -9$

27. If $f(x) = x^2$ and $g(x) = 3x - 1$, what is $f(g(x))$? $9x^2 - 6x + 1$

28. If $f(x) = \{(3, 2), (4, -5)\}$ and $g(x) = \{(11, 3), (1, 4)\}$, what is $[f \circ g](x)$? $\{(11, 2), (1, -5)\}$

29. Find the inverse of the relation $\{(-2, 5), (0, 4), (1, -8), (4, 7)\}$ $\{(5, -2), (4, 0), (-8, 1), (7, 4)\}$

30. Find the inverse of the function $f(x) = 4x - 2$

$$f^{-1}(x) = \frac{x+2}{4}$$

31. Determine whether $g(x) = 3x - 6$ and

$$f(x) = \frac{1}{3}x + 2$$

are inverses. Support your answer by using composition of functions.

①. $(f \circ g)(x) = x$ ✓

$$g(x) = 3x - 6$$

$$f(3x-6) = \frac{1}{3}(3x-6) + 2 = x - 2 + 2 = x$$

Since $(f \circ g)(x) = x$ and $(g \circ f)(x) = x$, $g(x)$ and $f(x)$ are inverses.

②. $(g \circ f)(x) = x$ ✓

$$f(x) = \frac{1}{3}x + 2$$

$$g\left(\frac{1}{3}x + 2\right) = 3\left(\frac{1}{3}x + 2\right) - 6 = x + 6 - 6 = x$$

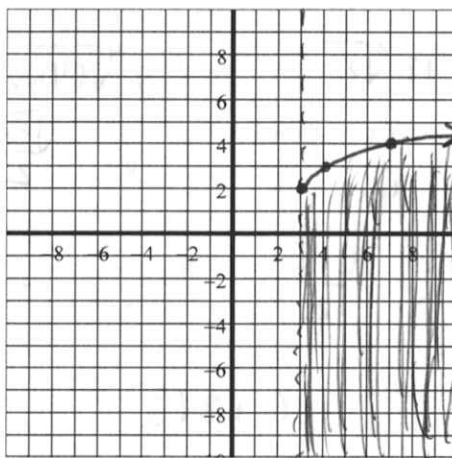
32. State the domain and range of

$$y = 2 + \sqrt{x-3}$$

$$D: x \geq 3$$

$$R: y \geq 2$$

33. Graph: $y \leq 2 + \sqrt{x-3}$



34. Graph the inverse relation of the given graph.

