

Algebra Review Worksheet
Algebra Exam – Monday, November 16th

There are 30 problems on this worksheet.

In problems 1-16, simplify each expression completely. Your final answer should not have any negative number exponents.

In problems 17-30, solve the following equations for x , unless otherwise specified. Assume $a, b,$ and c are parameters. Give **exact** answers.

1. $\frac{3}{y-7} + x$

6. $\frac{\frac{c}{x+h} - \frac{c}{x}}{h}$

2. $\frac{6}{z-5} - \frac{8}{5-z}$

7. $\frac{(x^2+1)^{\frac{1}{2}} x^{-\frac{1}{2}} - x^{\frac{1}{2}}(2x)}{(x^2+1)^{\frac{3}{2}}}$

3. $\frac{(a+5)^3 - 4a^2(a+5)}{(a+5)^4}$

8. $\frac{3(y-6)^{\frac{1}{2}} - 2y(y-6)^{-\frac{1}{2}}}{y-6}$

4. $\frac{b^{-2}}{c^{-1} + b^{-1}}$

9. $\frac{a^{2-t} b^{-3n}}{a^{t+1} b^n}$

5. $\frac{\frac{36}{x} - x}{\frac{6}{x} + 1}$

10. $(e^4)^a \cdot e^a$

11. $\sqrt{25}$

17. $5^{x+1} = \sqrt[3]{5}$

12. $\sqrt[3]{64x^5} - \sqrt[3]{x^2}$

18. Solve for z : $\frac{z^2(3-z)}{z+1} < 0$

13. $\log t - 2 \log w + 3 \log v$

19. Solve for w : $|-7w + 4| - 6 = -3$

14. $10^{(2+\log x)}$

20. $\frac{-2x}{9} - \frac{x}{4} = -3$

15. $2 \ln(e^{\sqrt{x}})$

21. Solve for y : $7y(y-2) = 1$

16. Factor completely: $z^3 + 2z^2 - 16z - 32$

$$22. x^{\frac{5}{3}} = 32$$

$$28. \log(\sqrt{12-x}) = \log(x)$$

$$23. \text{Solve for } t: -2at + 3 = 7a - 4t$$

$$29. \text{Solve for } r: N = 3\pi\sqrt{\frac{M}{r}}$$

$$24. \text{Solve for } z: 3(z+17)^2 - 8 = 0$$

$$30. \text{Solve for } y: e^{3-7y} = 4$$

$$25. \text{Solve for } z: \frac{3}{a} - \frac{4}{z} = \frac{-2}{b} \text{ (simplify your solution completely)}$$

$$26. \text{Solve for } w: 2w^2e^w - 14w^5e^w = 0$$

$$27. \log_3(4x-1) = -2$$