

**Algebra Review Worksheet and Answers**  
**Algebra Exam – Wednesday, September 2nd**

There are 30 problems on this worksheet. The answers are shown starting on page 4.

In problems 1-10, simplify each expression completely with a common denominator. (if applicable) Your final answer should not have any negative number exponents. Assume that  $a, b,$  and  $c$  are parameters.

1.  $\frac{3x}{x+1} - \frac{7x+2}{4x}$

6.  $\frac{(a+8)^{x+1}}{(a+8)^{4x-2}} =$

2.  $\frac{1+2t}{\sqrt{t+3}} + 2\sqrt{t+3}$

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

3.  $\frac{2}{y+4} - \frac{3}{y-4}$

8.  $\frac{4(z+2)^{1/2} - 2z(z+2)^{-1/2}}{z+2}$

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

9.  $b^{y-1} b^{1-y}$

5.  $\frac{(x^3+1)^2 - 6x^3(x^3+1)}{(x^3+1)^4}$

10.  $\frac{5}{\sqrt{1-z^2}} - 3\sqrt{1-z^2}$