

This review targets those aspects of Grade 10 and 11 algebra that are particularly important for doing calculations in Math 108 (Applied Calculus). For most students, the following exercises will be relatively easy. However, if you have not done a Mathematics course recently, you may find these problems challenging. If you feel overwhelmed by the difficulty of these questions, you may want to consider taking a preparatory course such as Math 107, before attempting Math 108. Math 107

3. Solve the following rational equations:

a)  $\frac{\quad}{\quad} = 0$

b)  $\frac{\quad}{\quad} = 0$

c)  $\frac{\quad}{\quad} = \frac{\quad}{\quad}$

4. Solve the following radical equations:

a)  $\sqrt{7x+1} - 8 = 0$

b)  $\sqrt{\frac{2x-4}{21}} = 0$

1. Solve the linear inequality:  $9 - 4(2 - 3) \geq 3(5 - 2)$

2. Solve the following inequalities by simplifying to make one side zero (if needed), finding all values for which the expression is zero or undefined and then using test points on a number line. Give your answers using interval notation.

a)  $8x + 14 < 2$

b)  $(4x - 1)(x + 2) > 0$

c)  $\frac{\quad}{\quad} > 0$

d)  $\frac{\quad}{\quad} < 1$

1. Convert the following radical expressions to ones involving rational exponents:

a)  $2\sqrt{x} + 6\sqrt{y}$

b)  $\sqrt{(2x+1)^3}$

2. Convert the following expressions involving rational exponents to radicals:

a)  $x^{-2}$

b)  $(x + y)^{-3}$

3. Use your calculator to estimate  $(-9)^{-2}$

4. Convert  $(4x + 3)^{-2}$  to a fraction.

5. Simplify the following expression and give your answer with only positive exponents:

$$\frac{(3x)^{-2}}{\quad}$$

6. Factor out the greatest common factor and simplify the following expression:

$$6(4x+1)^{-2} + 12(4x+1)^{-3}$$

7. Rationalize the denominator in the following expression:  $\frac{\quad}{\quad}$

8. Rationalize the denominator and simplify the following expression:  $\frac{\quad}{\quad}$

1. 2 + 2

2. 9 + 18

3.