Math 80 Spring 2019 Test 8 Practice Test Name:

Please silence your cell phone.

You must show your steps. If you're unsure whether you have enough work, please ask.

Helpful information

$x_{\text{coor}} = \frac{-b}{2a}$ Given $ax^2 + bx + c = 0$ then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Standard form $y = ax^2 + bx + c$ Vertex form $y = a(x-h)^2 + k$

$\log_a N = \frac{\ln N}{\ln a}$

1. Expand $\ln\left(\frac{2x}{\sqrt{y}}\right)$ using the logarithmic rules. Simplify when possible.

2. Condense $3\ln x + 2\ln y - \ln(xy)$ using the logarithmic rules. Simplify when possible.

3. Solve $\log_2(x+2) + \log_2 x = 3$

4. Factor, and if possible, reduce. $\frac{x^2 - 36}{x^2 + 4x - 12}$.

5. Simplify $\frac{k^2 + 9k + 14}{k^3 + 8} \div \frac{k^2 + 7k}{k^2 - 2k + 4}$.

6. Simplify $\frac{3k-7}{2k}+\frac{5k+8}{2k}-\frac{4k-1}{2k}$.

7. Simplify $\frac{6k+5}{k^2+4k+3}-\frac{5k+2}{k^2+4k+3}$.

8. Simplify $\frac{y+x}{xy}-\frac{1}{x}+\frac{1}{y^2}$.

9. Simplify $\frac{x+3}{x-4}+\frac{-21}{x^2-5x+4}+\frac{x-6}{x-1}$.

10. Given $\frac{x+3}{x} = \frac{5}{2} + \frac{3}{2x}$ list any excluded value(s) and then solve the equation.

11. Given $\frac{-2}{a^2 - a - 2} - \frac{2}{a-2} = \frac{6}{a+1}$ list any excluded value(s) and then solve the equation.

12. For the function $f(x) = x^2 + 3x$ find and simplify

a) $f(2)$	b) $f(-4)$	c) $f(a+1)$
d) $-f(3)$	e) $f(k+1) - f(k)$	

13. For the functions $f(x) = x - 7$ and $g(x) = 2x + 5$ find and simplify

f) $(f+g)(x)$	g) $(f+g)(2)$	h) $(f-g)(x)$
i) $(f \bullet g)(x)$	j) $(f \bullet g)(1) - (f+g)(1)$	

14. Simplify

a) $\sqrt{-16}$

b) $6(i-1)-(2i+1)+2(2i-1)$

c) $\sqrt{-5}\sqrt{-15}$

d) $(3-i)(1-4i)$

e) $(1-i)^3$