Math 80 Spring 2019 Test 6 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. **Using a two-column table** solve $2\sqrt{x+4}-17=3$. (5 pts)

Oper	Inv

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2. Solve $\sqrt{x+4}+x=8$. (Since you have unlike terms you **can't use** a two-column table.) (6 pts)

3. Rewrite with rational exponents, reduce and if possible simplify. When possible, write final answers as roots. (3 pts each.)

a) $\sqrt[8]{a^2}$

b) $\sqrt[9]{(-1)^3}$

c) $\sqrt[10]{\frac{y^5}{x^{20}}}$

4. Simplify. Write your final answer as a root and rationalize any denominators.

a) $\sqrt[4]{2}\,\sqrt[6]{2^5}$ (4 pts)

b) $\frac{\sqrt[14]{x^5}}{\sqrt[7]{x^3}}$ (6 pts)

5. Solve $x^{-1/4} = 3$ (3 pts)

6. **Using a two-column table** solve $(3k-2)^5 - 42 = -10$. (6 pts)

Oper	Inv

7. Simplify and then check by writing into exponential form. (3 pts each.)

a) $\log_7 7$	b) $\log_2 8$	c) $\log_7\left(\frac{1}{49}\right)$	d) $\log_6 1$

8. Simplify using a calculator. If necessary round to the hundredths place. (1 pt each.)

a) $3^{-1.5}$	b) e^{2}	c) $10^{3.1}$	d) $e^{-0.4}$

9. Use the change of base formula to find $\log_{14} 7$. Show your work. (3 pts)

10. If I wanted \$5,000 to become \$10,000 in 5 years use $r = \dfrac{\ln\left(A/P\right)}{t}$ to find the interest rate I would need. (6 pts)

The known values are	Answer the question. (Use the proper label.)

11. Use $A = Pe^{rt}$ to find how much an account that started with \$175,000 would be worth after 30 years if the account earned 6.25%. (6 pts)

The known values are	Answer the question. (Use the proper label.)

12. Use $t = \ln\left(A/P\right) r^{-1}$ to find how long it will take to double \$100,000 at 6%? (6 pts)	
The known values are	Answer the question. (Use the proper label.)
13. Use $P = Ae^{-rt}$ to find how much I need to invest today at 4% to have 75,000 in 12 years? (6 pts)	
The known values are	Answer the question. (Use the proper label.)

14 **Using a two-column table** solve $\frac{e^x + 8}{3} = 5$. (7 pts)

Oper	Inv

Check your exact answer.
Show your steps

15. **Using a two-column table** solve $6e^{k+1}-1=2$. (8 pts)

Oper	Inv

Check your exact answer.
Show your steps.