Math 80 Spring 2019 Test 4 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

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

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

1. **Using a two-column table** solve $12 = 3(-4x + 1)$.

Build a two-column table   Solve the equation. Show each step.

Oper	Inv

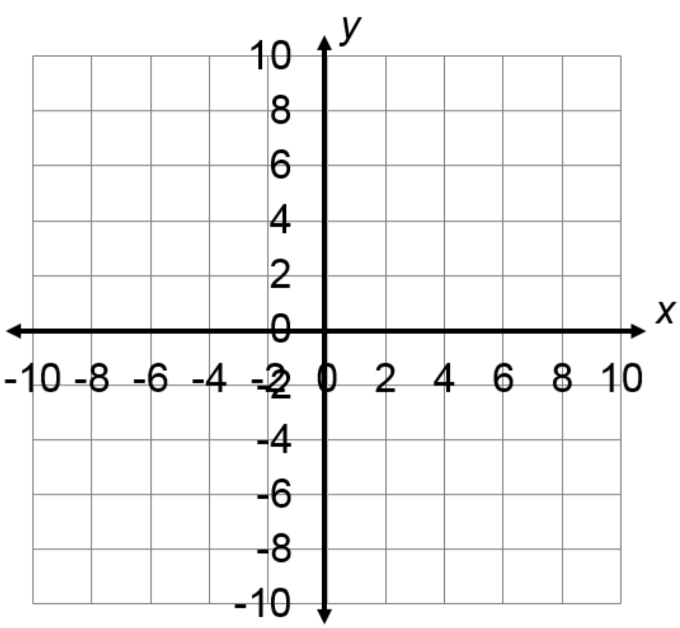
2. **Using a two-column table** solve $\frac{7x^2 - 3}{2} = 9$.

Build a two-column table   Solve the equation. Show each step.

Oper	Inv

3. Solve $y^2 - \frac{1}{2}y - \frac{1}{8} = 0$ by **completing the square.** You **must** begin by completing the square.

4. Graph $y = -(x+4)^2 + 8$ using the general procedure. **Make sure** to label the vertex and all intercepts with their ordered pairs. **Make sure** to simplify the *x*-intercepts in radical form and **do not** change them to "decimals".



5. From 2000 until 2018 the function $C(t) = -25(x-21)^2 + 15{,}000$ gave a good approximation of the cost for one year of tuition and fees (in dollars) at the University of Minnesota Twin Cities Campus. **Make sure to answer the following questions using English sentences.**

a) Answer the question $C(0)$ is asking.

b) Answer the question $C(t) = 12{,}500$ is asking.

c) The function implies that at some future date the cost of tuition will reach a maximum and then begin to drop from the cost of the previous year. (This hasn't happened in the past and probably won't happen in the future either.) Find the year the cost of tuition will be at a maximum and what that maximum amount will be.

6. Simplify $(\sqrt{6}+\sqrt{15})^2$.

7. Simplify $\dfrac{6\sqrt{3}}{\sqrt{3x}}$.

8. Simplify $\sqrt[4]{48x^7y^{12}}$.

9. Simplify $\sqrt[3]{\dfrac{x^6y^9}{-8}}$.

10. Simplify $\sqrt[3]{54x}+6\sqrt[3]{2x}-5\sqrt[3]{16x}$.

11. Simplify $\left(\sqrt[4]{a^3}-\sqrt[4]{9}\right)\left(\sqrt[4]{a^3}+\sqrt[4]{9}\right)$.