

Math 120 – Week 2 Tuesday Test Prep – Dr. Loveless

🕒 This is a quick 5-minute warm-up on algebra skills. Work quietly when you arrive.
Don't worry if you can only finish a few problems, just try your best.

The **participation code for today** is the answer to question 1 below. It is a whole number. Make sure you have this correct and enter it in the participation quiz for the day.

Part A: Solve Equations for x

1. $\frac{1}{3}(9x - 6) + 4x = 33$

4. $\frac{9}{x^2} - 1 = 0$

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

5. $4x^3 - 32 = 0$

3. $\frac{1}{\alpha} + \frac{1}{\beta} = \frac{1}{x}$

6. $x^2 - 5x + 6 = 0$

Again, the **participation code for today** is the answer to question 1. It is a whole number. Make sure you have this correct and enter it in the participation quiz for the day. Please also make a note to yourself about which problems you might want to review later. I will post video solutions later this week.

If you finished all of page 1, then the next page...

Part B: Simplify Expressions

1. $(1 - t)^2 + (2 + 2t)^2$

2. $\frac{1}{t-2} - \frac{1}{t+1}$

3. $\sqrt{(1 + t)^2 + t^2}$

Challenge (NOT part of this course, but can be solved with the quadratic formula and is fun)

The following patterns surprisingly approach the same number, which is called the *golden ratio*,...

$$1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \dots}}} \quad \text{and} \quad \sqrt{1 + \sqrt{1 + \sqrt{1 + \dots}}}$$

- If we write $x = 1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \dots}}}$, then $x = 1 + \frac{1}{x}$.
- If we write $x = \sqrt{1 + \sqrt{1 + \sqrt{1 + \dots}}}$, then $x = \sqrt{1 + x}$.

Solve either of these quadratic equations to get the value of the golden ratio.