JCTC MAT 150 – Practice Test #1- Robinson- 2020

**SHOW ALL WORK**

1. Solve -5 + 3(x+5) = 2(3x-4)
2. Solve $\frac{x-3}{5}$ -1 = $\frac{x-5}{4}$
3. Solve **and determine the domain restrictions** for: $\frac{4}{x}$ = $\frac{5}{2x}$ +3
4. Solve **and determine the domain restrictions** for: $\frac{3}{x+4}$ -7 = $\frac{-4}{x+4 }$
5. Find all of the values of x satisfying the condition y1 = y2

y1  = 7(3x -2) +5 y2 = 6(2x-1) +24

1. Find all values of x such that y = 0 for y = 2[3x –(4x-6)] – 5(x-6)
2. Solve and determine whether the equation is an identity, conditional equation or an inconsistent equation- 4x +7 = 7(x+1) – 3x
3. Same as #7- 4(x +5) = 21 +4x
4. Solve by **factoring**- 2x2 +15x = 8
5. Solve using the **square root property**- 2x2 – 3 = 125
6. Same- (x+3)2 = -10
7. Same- (3x -4)2 = 18
8. Solve using the **quadratic formula**- x2 = 2x+4
9. Same- x2 -2x +19 = 0
10. The formula w = 3t2 models the weight of a human fetus, W, in grams after *t* weeks, where 0 ≤ t ≤ 39. After how many weeks does the fetus weigh 588 grams?
11. The formula B = 1.7x2 +6x +26 models the number of bicycle-friendly communities, B, x years after 2003. Determine the number of bicycle-friendly communities in 2011, rounding to the nearest whole number.
12. Solve by factoring- 8x4 = 20x2
13. Solve by factoring- 2x3-x2 -18x +9 = 0
14. Solve- $ \sqrt{x+10}=x-2$
15. Solve- $\sqrt{x}-3=x-9$
16. Solve- $\sqrt{x+5}- \sqrt{x-3}=2$
17. Solve- 3x3/4  - 24 = 0
18. Solve- (x-7)2/3 = 25
19. Solve- (x2- x - 4)3/4 – 2 = 6
20. Solve- x4 -11x2 +24 = 0
21. Solve- x – 13$\sqrt{x}+40=0$
22. Solve- x2/3 –x1/3 – 6 = 0
23. Solve- x-2 –x-1 –20 = 0
24. Solve- (x-5)2 -4(x-5) -21 = 0
25. Solve- $\left|2x-3\right|=11$
26. Solve- $\left|x+1\right|+6=2$
27. Solve- 4$\left|1-\frac{3}{4}x\right|+7=10$
28. Express the interval (5,18] in set-builder notation **and graph** on a number line.
29. Express the interval (-∞,8) in set-builder notation **and graph** on a number line.
30. **Use a graph** to find the set: (-2,8) ∩ [1,14]
31. Same: (-∞,4] ∩ (-1,∞)
32. Same: (3,24) U [-8,15)
33. Same: (-∞,4) U [4,∞)

Solve and express solution sets in interval notation-

1. 2x + 5 < 17
2. -4(x+2) > 3x+20
3. 1 - $\frac{x}{2}$ > 4
4. 5(x-2) -3(x+4) ≥ 2x-20
5. -11 < 2x-1 < -5

Solve and express solution sets on a number line-

1. $\left|x-1\right|$ ≤ 2
2. $2 \left|3x-8\right|>14$
3. 4 $\left|2x+3\right|$ -5 ≥ -6

\*The actual test will be incredibly similar to this one (albeit much shorter). Remember, you can use a 3x5 notecard. I would fill that in as I work through (see what I need) this practice test, plus use suggestions I’ve given.