

PROBLEM RECOGNITION EXERCISES

Name: _____

Recognizing and Solving Equations and Inequalities

Section: _____

For Exercises 1-20,

- a. Identify the type of equation or inequality (some may fit more than one category).
- b. Solve the equation or inequality. Write the solution sets to the inequalities in interval notation if possible.

- Linear equation or inequality
- Quadratic equation
- Rational equation
- Absolute value equation or inequality
- Radical equation
- Equation quadratic in form
- Polynomial equation (degree > 2)
- Compound inequality

1. $(x^2 - 5)^2 - 5(x^2 - 5) + 4 = 0$

2. $2 \leq |3t - 1| - 6$

3. $\sqrt[3]{2y - 5} - 4 = -1$

4. $-9|3z - 7| + 1 = 4$

5. $\frac{2}{w-3} + \frac{5}{w+1} = 1$

6. $48x^3 + 80x^2 - 3x - 5 = 0$

7. $-2(m+2) < -m+5$ and $6 \geq m+3$

8. $6 \leq -2c+8$ or $\frac{1}{3}c - 2 < 2$

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9. $(2p+1)(p+5) = 2p+40$

10. $2x(x-4) + 7 = 2x^2 - 3[x+5-(2+x)]$

11. $\frac{a-4}{2} - \frac{3a+1}{4} \leq -\frac{a}{8}$

12. $3x^2 + 11 = 4$

13. $-1 \leq \frac{6-x}{-5} \leq 7$

14. $5 = \sqrt{5+2n} + \sqrt{2+n}$

15. $|4x-5| = |3x-2|$

16. $\frac{1}{d} - \frac{1}{2d-1} + \frac{2d}{2d-1} = 0$

17. $-|x+4| + 8 > 3$

18. $y - 4\sqrt{y-12} = 0$

19. $c^{2/3} = 16$

20. $2|z-14| + 8 > 4$