

2E Literally Solving Literal Equations Name: _____ Per: _____

SHOW ALL YOUR WORK. NO WORK IN PEN.

Objectives: Manipulate equations by solving for different variable.

Due: Sept 26th / Sept 27th

Solve the following literal equations for the indicated variables.

1. $\frac{1}{2}a - 2b = d - 4e$, solve for b

6. $\frac{f+g}{3} = y$ solve for g

2. $(2 + a)b + d = e$, solve for b

7. $S = \pi r^2 + \pi r l$, solve for l

3. $\frac{x+y}{3} = 5$, solve for x

8. $a^2 + b^2 = c^2$, solve for a

4. $h = ea + rt$, solve for r

9. $Ax - By = C$, solve for B

5. $3x - (x + 6)y = 5z$, solve for y

10. $V = \frac{(4\pi r^2)}{3}$, solve for r

11. **Simplify the following roots.** Give exact answers. No decimals. No calculators.

a. $\sqrt{24}$

b. $\sqrt{240}$

c. $\sqrt{225}$

d. $\sqrt{40}$

e. $\sqrt{375} + \sqrt{60}$

12. Given the simplified root of $3\sqrt{2}$, **EXPLAIN** how could you put the whole number of 3 BACK UNDER THE RADICAL? (Put the 3 back under the radical.)

13. If $\sqrt{5 \cdot 5 \cdot 2} = 5\sqrt{2}$, then $\sqrt{5 + 5 \cdot 2} =$ _____ Are they the same? _____ Explain:

Solve for the given variable. **Explain** your steps to the right. **Simplify** and leave exact. **CHECK BELOW.**

14. **For b:** $4(b^2 + 3) = 96$ GIVEN

16. **For m:** $-1 + 6m^3 - 5n = 9 + m^3$ _____

✓

✓

15. **For n:** $2(n + 7) = 4a$

17. **For x:** $10(y + 3) = 15 + 5(x^2 - 6)$ GIVEN

✓

✓

18. Solve the following by first distributing over addition. List the **ENTIRE NAME of the property** to the side. (Use only as many lines as necessary.)

$3(2x + 5) - 21 = 30 + 9x$

19. **Check your answer from above** by plugging in your answer to the **ORIGINAL** equation.

$3(2 * \underline{\hspace{1cm}} + 5) - 21 = 30 + 9(\underline{\hspace{1cm}})$

20. Looking at the equation from #18: $3(2x + 5) - 21 = 30 + 9x$. Because all of the terms are divisible by we can divide **EVERYTHING** by 3 first. By dividing first, you get a new equation.

a. Write this new equation and solve for x.

b. Solve for x.

c. Did you get the same answer? _____
Why or why not?