TMT Equation 20 ACT Prep V2

1. Solve for x: $3x + 4 - 10 = 3(x - 2)$

2. Write and solve the following:
   5 more than twice of a number is equal to a number decreased by 1.

3. Solve for x: $3(x - 8) = 4x + 9 - x$

4. Solve for y in terms of x: $x + 10y = 9x - 2$

5. Solve for x in terms of b: $x + bx = 2$

6. Use substitution to solve for x and y:
   $$\begin{cases} 3x + y = 5 \\ 5x - 4y = -3 \end{cases}$$

7. Solve for x: $\log_4 x = -2$

8. Using elimination, solve for x and y:
   $$\begin{cases} 10x + 5y = 20 \\ 2x + 3y = 6 \end{cases}$$

9. Solve for x. Keep in logarithmic form:
   $12^x = 7$

10. Solve for x: $\frac{1}{5} + 3x = \frac{3}{4}$

11. Solve for x: $2x^2 + 8x - 3 = 7$

12. Solve for h in terms of V and r: $V = \pi r^2 h$

13. Solve for x: $6x^2 - 12x + 1 = 0$

14. Solve for x: $2|x - 1| = 5$

15. Solve for x: $2^{2x} = 16^{x+1}$
    (hint: get the bases the same)

16. Write and the solve the system of equations:
    Alan bikes 5 miles per hour. Christine has a 2 mile head start but bikes at 3 mph. How long will it take Alan to catch up to Christine?

17. Solve for x: $-5x + 21 > 6$

18. Solve for x: $3(x + 5)^2 - 7 = 20$

19. Write and solve the exponential equation:
    An amazing investment plan has a 10% annual interest. If $500 was originally invested, how many years will it take before $105 is added to that amount?

20. Solve for x: $2x^3 + 4x^2 - 6x - 10 = 2$