

TMT First 20 ACT Prep V2

1. Multiply $(x - 2)^2$ [211]
 $(x-2)(x-2)$
 $x^2 - 2x - 2x + 4 = x^2 - 4x + 4$

2. Find the slope if given two points, (-1, 3) and (5, 4) [210]
 $M = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 3}{5 - (-1)} = \frac{1}{6}$

3. Solve $|x - 2| = 14$ [84]
 $x - 2 = 14$ $x - 2 = -14$
 $+2$ $+2$ $+2$ $+2$
 $x = 16$ $x = -12$

4. Evaluate $f(x) = 2x^2 - 1$ if $x = -2$ [110]
 $2(-2)^2 - 1$
 $2(4) - 1$
 $8 - 1 = 7$

5. Simplify $\frac{3}{4} \cdot \frac{8}{5}$ [42]
 $\frac{3}{4} \cdot \frac{4 \cdot 2}{5} = \frac{6}{5} = 1\frac{1}{5}$ also

6. Simplify $\frac{-2 \pm 2\sqrt{2}}{4}$ [214]
 factor top $2(-1 \pm \sqrt{2})$
 factor bottom $2 \cdot 2$
 $= \frac{-1 \pm \sqrt{2}}{2}$

7. Multiply $(3x - 5)(x + 2)$ [60]
 $3x^2 + 6x - 5x - 10 = 3x^2 + x - 10$

8. Solve. Show 3+ steps of work [89]
 $-2 - (x - 1) = 3x + 5$
 $-2 - x + 1 = 3x + 5$
 $-x - 1 = 3x + 5$
 $+x$ $+x$
 $-1 = 4x + 5$
 -5 -5
 $-6 = 4x$ $x = \frac{-6}{4} = \frac{-3 \cdot 2}{2 \cdot 2} = \frac{-3}{2} = -1.5$ also

9. Simplify $\frac{2}{3} \cdot \frac{7}{3}$ [50]
 $\frac{2}{5} \cdot \frac{7}{3} = \frac{14}{15}$

10. Factor out a GCF $2x^2 - 14x + 2ax$ [58]
 $2x(x - 7 + a)$

11. Simplify $(2a^2b^5)^3 \cdot b^2$ [206]
 $8a^6b^{15} \cdot b^2 = 8a^6b^{17}$

12. Find the following: $6y = 6x - 3$ [135]
 Slope: 1
 Y-Intercept: $(0, \frac{1}{2})$ $y = 1x - \frac{1}{2}$

13. Solve $(2x + 3)(x - 5) = 0$ [85]
 $2x + 3 = 0$ $x - 5 = 0$
 -3 -3
 $2x = -3$ $x = 5$
 $x = -\frac{3}{2} = -1.5$ also

14. Solve $-3n - 1 < -4$ [82]
 $-3n - 1 < -4$
 $+1$ $+1$
 $-3n < -3$ $n > 1$
 -3 -3 *Divide by neg... Switch sign*

15. Solve $x^2 - 2x - 1 = 4$ [88]
 $x^2 - 2x - 5 = 0$ *want factor so...*
 $x = \frac{2 \pm \sqrt{4 - 4(-1)(-5)}}{2 \cdot 1}$

16. Simplify $\frac{(x-6)(x+2)}{x^2-36}$ [209]
 $\frac{(x-6)(x+2)}{(x-6)(x+6)}$

17. Simplify $\frac{2 \cdot 2}{2 \cdot 9} + \frac{5 \cdot 4}{2 \cdot 9}$ [39]
 $\frac{4}{18} + \frac{20}{18} = \frac{24}{18} = \frac{4}{3}$ also $\frac{13}{18}$

18. Factor $x^2 - 3x - 4$ [53]
 $(x-4)(x+1)$

19. Simplify (PEMDAS) $3(4 - 3(x + 2))$ [212]
 $3(4 - 3x - 6)$
 $12 - 9x - 18$
 $-9x - 6$

20. Simplify $\frac{8x^2}{40x^7}$ [74]
 $\frac{8 \cdot 1 \cdot x^2}{8 \cdot 5 \cdot x^2 \cdot x^5} = \frac{1}{5x^5}$

$x = \frac{2 \pm \sqrt{24}}{2}$
 $x = \frac{2 \pm 2\sqrt{6}}{2}$
 $x = \frac{2(1 \pm \sqrt{6})}{2}$
 $x = 1 \pm \sqrt{6}$