No Calculator - 20 Minutes Timed
Find videos on each *[skill]* at www.AlgebraNinja.com Name: KEY Hour:____

TMT First 20 ACT Prep V5

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

$(x-4)(x-4) = x^2-4x-4x+16$

$x^2-8x+16$

2. Find the slope if given two points, (-8, 7) and (2,8)[210]

$m = \frac{y_2-y_1}{x_2-x_1} = \frac{8-7}{2--8} = \frac{1}{10}$

3. Solve $|x-9| = 24$ [84]

$x-9=24$ $\quad +9\ +9$ $\quad x=33$

$x-9=-24$ $\quad +9\ +9$ $\quad x=-15$

4. Evaluate $f(x) = -2x^2 - x + 2 \; if \; x = -1$ [110]

$-2(-1)^2-(-1)+2$

$-2\cdot1+1+2$

$-2+1+2 = 1$

5. Simplify $\frac{2}{15} \cdot \frac{5}{7}$ [42]

$\frac{2}{15_3} \cdot \frac{5^1}{7} = \frac{2}{21}$

6. Simplify $\frac{-6\pm6\sqrt{2}}{4}$ [214]

$\frac{6(-1\pm\sqrt{2})}{4}$ $\quad \frac{2\cdot3(-1\pm\sqrt{2})}{2\cdot2}$

$\frac{-3\pm3\sqrt{2}}{2}$ or $\frac{3(-1\pm\sqrt{2})}{2}$

7. Multiply $(2x-10)(x+1)$ [60]

$2x^2+2x-10x-10 = 2x^2-8x-10$

8. Solve. Show 3+ steps of work [89]

$-5-(x+1) = 9x+5$

$-5-x-1 = 9x+5$

$-x-6 = 9x+5$

$+x \quad +x$

$-6 = 10x+5$

$-5 \quad -5$

$\frac{-11}{10} = \frac{10x}{10}$ $\quad x = \frac{-11}{10} = -1\frac{1}{10}$ also

9. Simplify $\frac{\frac{2}{5}}{\frac{3}{7}}$ [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 $(2a^3b^7)^2 \cdot b^9$ [206]

$4a^6b^{14}\cdot b^9 = 4a^6b^{23}$

12. Find the following: $8y = 4x - 8$ [135]

$\frac{8y}{8} = \frac{4x}{8} - \frac{8}{8}$

$y = \frac{x}{2} - 1$

Slope: $\frac{1}{2}$

Y-Intercept: $(0,-1)$

13. Solve $(5x+1)(x-9) = 0$ [85]

$5x+1=0$ $\quad x-9=0$

$-1\ -1$ $\quad +9\ +9$

$5x=-1$ $\quad x=9$

$x=-\frac{1}{5}$

14. Solve $-2n-4 < -7$ [82]

$+4\ +4$

$\frac{-2n}{-2} < \frac{-3}{-2}$ divided by a negative so switch the sign

$n > \frac{3}{2} = 1\frac{1}{2}$ also

15. Solve $x^2 - 9x - 1 = 1$ [88]

$-1\ -1$

$x^2-9x-2=0$

$x = \frac{9\pm\sqrt{81-4(1)(-2)}}{2\cdot1}$

$x = \frac{9\pm\sqrt{89}}{2}$

16. Simplify $\frac{(x-5)(x+12)}{x^2-25}$ [209]

$\frac{(x-5)(x+12)}{(x-5)(x+5)}$

17. Simplify $\frac{2}{11} + \frac{5}{2}$ [39]

$\frac{2\cdot2}{11\cdot2} + \frac{5\cdot11}{2\cdot11}$

$\frac{4}{22} + \frac{55}{22} = \frac{59}{22} = 2\frac{15}{22}$ also

18. Factor $x^2 + 8x - 9$ [53]

$(x+9)(x-1)$

19. Simplify(PEMDAS) $5(3-2(x+3))$ [212]

$5(3-2x-6)$

$5(-2x-3) = -10x-15$

or

$-5(2x+3)$

20. Simplify $\frac{6x^2}{40x^3}$ [74]

$\frac{2\cdot3x^2}{2\cdot20x^2x} = \frac{3}{20x}$