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

TMT V2 First 20 Algebra Prep

1. Multiply $(x-2)^2$ [61]

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

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]

$x-2=14$ $\quad x-2=-14$
$+2 \quad +2 \quad +2 \quad +2$
$x=16 \quad x=-12$

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

$f(-2) = 2(-2)^2-1$
$= 2\cdot 4 - 1 = 7$

5. Simplify $\frac{3}{4} \cdot \frac{8}{5}$ [42]

$\frac{24}{45} = \frac{24}{20} = \frac{6}{5}$

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

Factor $\rightarrow \frac{2(-1\pm\sqrt{2})}{2\cdot 2} = \frac{-1\pm\sqrt{2}}{2}$

7. Multiply $(3x-5)(x+2)$ [60]

$3x^2+6x-5x-10 = 3x^2+x-10$

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

$-2-(x-1) = 3x+5$
$-2-x+1 = 3x+5$
$+x \quad +x$
$-1 = 4x+5$
$-5 \quad -5$
$\frac{-6}{4} = \frac{4x}{4} = -\frac{3\cdot 2}{2\cdot 2} = \frac{-3}{2}$ or -1.5

9. Simplify $\frac{\frac{2}{5}}{\frac{3}{7}}$ [50]

$\frac{2}{5} * \frac{7}{3} = \frac{14}{15}$

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

$\frac{2x^2}{2x} - \frac{14x}{2x} + \frac{2ax}{2x}$
$2x(x-7+a)$

11. Simplify $(2a^2b^5)^3 \cdot b^2$ [206]

$8a^6b^{15}\cdot b^2 = 8a^6b^{17}$

12. Find the following: $\frac{6y}{6} = \frac{6x}{6} - \frac{3}{6}$ [135]

Slope: 1
Y-Intercept: $y = 1\cdot x - \frac{1}{2}$
$y = -\frac{1}{2}$ or $(0, -\frac{1}{2})$

13. Solve $(2x+3)(x-5) = 0$ [85]

$2x+3=0 \quad x-5=0$
$-3 \quad -3 \quad +5 \quad +5$
$2x=-3 \quad x=5$
$x=\frac{-3}{2}$

14. Solve $-3n-1 < -4$ [82]

$+1 \quad +1$
$\frac{-3n}{-3} < \frac{-3}{-3}$
$n > 1$

Sign switch when DIV/mult by negative

15. Solve $x^2-2x-1=4$ [88]

$-4 \quad -4$
$x^2-2x-5=0$
$a=1 \quad b=-2 \quad c=-5$
$1\pm\sqrt{6}$

$x = \frac{-b\pm\sqrt{b^2-4ac}}{2a}$
$\frac{-(-2)\pm\sqrt{4-4(1)(-5)}}{2(1)}$
$\frac{2\pm\sqrt{24}}{2}$
$\frac{2\pm\sqrt{6}\sqrt{4}}{2}$
$\frac{2\pm 2\sqrt{6}}{2}$
$\frac{2(1\pm\sqrt{6})}{2}$

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

$\frac{(x-6)(x+2)}{(x-6)(x+6)} = \frac{x+2}{x+6}$

17. Simplify $\frac{2}{9}+\frac{5}{2}$ [39]

$\frac{2}{9}\cdot\frac{2}{2} + \frac{5}{2}\cdot\frac{9}{9} = \frac{4}{18}+\frac{45}{18} = \frac{49}{18}$

18. Factor x^2-3x-4 [53]

$(x+1)(x-4)$

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

$3(4-3x-6)$
$3(-3x-2)$
$-9x-6$

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

$\frac{8\cdot 1\cdot x\cdot x}{8\cdot 5\cdot x\cdot x\cdot x^5} = \frac{1}{5x^5}$