LESSON 164

1. $(9-1) \div 2^2 \times (-2)^4$

$= 8 \div 2^2 \times (-2)^4$	Parentheses
$= 8 \div 4 \times 16$	Exponents
$= 2 \times 16$	Division
$= 32$	Multiplication

2. $4x - 1 = 7$

$4x = 8$	Add 1 to both sides.
$x = 2$	Divide both sides by 4.

$2x + 5 = 2(2) + 5 = 9$

3. $\frac{1}{2}x - \frac{1}{3} = \frac{2}{3}x + \frac{1}{6}$

$3x - 2 = 4x + 1$	Multiply both sides by 6.
$-x - 2 = 1$	Subtract $4x$ from both sides.
$-x = 3$	Add 2 to both sides.
$x = -3$	Divide both sides by -1.

4. The answer is D.

A) $x = 3$ B) $x = 1$

C) $x = 1$ D) $0 = 2$

5. The answer is B.

$5x - 4 \geq 1$ and $2x + 1 < 5$

$5x \geq 5$ $2x < 4$

$x \geq 1$ $x < 2$

The solution set is $1 \leq x < 2$.

6. The answer is C.

$4x + 1 < -7$ or $-2x + 3 \geq 1$

$4x < -8$ $-2x \geq -2$

$x < -2$ $x \leq 1$

The solution set is $x \leq 1$.

7. $|x - 3| + 2 = 7$

$\lvert x - 3 \rvert = 5$	Isolate the absolute value.
$x - 3 = 5$ or $x - 3 = -5$	Rewrite as two equations.
$x = 8, x = -2$	Solve each equation.

The sum is $8 + (-2) = 6$.

8. The answer is B.

The inequality B has no solutions because an absolute value can never be negative.

9. Let $x =$ first even integer

$x + 2 =$ second even integer

$x + 4 =$ third even integer

Sum $= 24$, so $x + (x + 2) + (x + 4) = 24$.

Solve for x, and you get $x = 6$.

The integers are 6, 8, and 10.

10. Let $x =$ number of quarters

$x - 3 =$ number of dimes

$0.25x =$ value of quarters

$0.10(x - 3) =$ value of dimes

Total value $= 2.50$, so $0.25x + 0.10(x - 3) = 2.50$.

Solve for x, and you get $x = 8$.

Emma has 8 quarters.

11. Plug the points into the slope formula.

slope $m = \frac{1 - (-3)}{1 - 0} = 4$

12. $m = \frac{2 - 0}{0 - 3} = -\frac{2}{3}$ Find the slope using any two points like $(3, 0)$ and $(0, 2)$.

$b = 2$ $(0, 2)$ is the y-intercept.

$y = mx + b$ Slope-intercept form

$y = -\frac{2}{3}x + 2$ Plug in m and b.

$3y = -2x + 6$ Multiply both sides by 3.

$2x + 3y = 6$ Add $2x$ to both sides.

13. The answer is B.

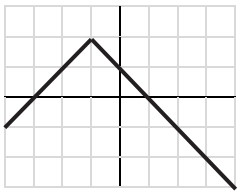
The slope must be 2 because parallel lines have the same slope, so eliminates C and D.

$(2, 0)$ is on the line, so choose B.

14. The answer is C.

The line is dashed, so eliminate B and D.

$(0, 1)$ is a solution, so choose C.

15. 

Vertex: $(-1,2)$.

x-intercepts: $-3, 1$

y-intercept: 1

16. The initial amount is 200 and the rate of change is -8, so the equation is $y = -8x + 200$.

17. The cost of adult tickets is $7x$ and the cost of child tickets is $5y$, so the expression is $7x + 5y$.

18. The answer is B.

The expression for the total cost is $6x + 7$.

Chris can spend \$50, so choose B.

19. $|2x - 3| \leq 5$

$-5 \leq 2x - 3 \leq 5$	Write a compound inequality.
$-2 \leq 2x \leq 8$	Add 3 to all sides.
$-1 \leq x \leq 4$	Divide all sides by 2.
$5 \leq x + 6 \leq 10$	Add 6 to all sides.

20. Parallel lines never intersect and have the same slope, so the line has the same slope as the given line.

The line has slope -4 and y-intercept 4, so its equation is $y = -4x + 4$.

This line passes through Quadrants I, II, and IV.