Name ____________________________ Algebra Test Review: 1.7, 1.8 and chapter 2

Your test has 20 questions. Even though some questions are multiple choice you are required to show your work and use test-taking strategies (highlight, strike answers, etc.)

The test will include 1.7, 1.8, 2.3, 2.4, 2.5, 2.6, and coding stages 1 and 2.

Complete the following:

1. solve for a: $\frac{c}{a} = \frac{d}{b}$
   $$\frac{ad}{a} = \frac{bc}{a}$$
   $$a = \frac{bc}{d}$$

2. Solve for y: $5y - 4x = 15$
   $$\frac{5y}{4} = \frac{15}{4x} + 4x$$
   $$\frac{5y}{4} = \frac{15x + 3}{4x}$$
   $$y = \frac{4}{5}x + 3$$

3. solve for W: $WX - Y = Z$
   $$W = \frac{y + z}{x}$$

4. Simplify: $-\frac{4}{3} (15x - 24)$
   $$-20x + 32$$

5. $3x^5 + 6x^5$
   $$9x^5$$

6. MODEL and use the distributive property:
   $$13(102)$$
   $$13(100 + 2)$$
   $$1300 + 260$$
   $$13260$$

7. $5x - 2x - 4 + 11$
   $$3x - 4 = 11$$
   $$3x = 15$$
   $$x = 5$$

8. $5x + 12 = 5x + 7x - 4x$
   $$5x + 12 = 8x$$
   $$-x = 12$$
   $$x = 12$$
   $$3x = 3$$
   $$x = 4$$
9. \[2x + 5 = 5x + 11\]
\[
\begin{array}{c|c}
-2x & -2x \\
5 & 3x + 11 \\
-11 & -11 \\
\hline
-6 & 3x \\
3 & 3 \\
-2 & x
\end{array}
\]

11. \[3x + 6 - 4x = x + 10\]
\[
\begin{array}{c|c}
-x + 6 & x + 10 \\
+ x & + x \\
\hline
6 & 2x + 10 \\
-10 & -10 \\
\hline
-4 & 2x \\
-2 & x
\end{array}
\]

13. \[4x - 9 = 2(2x + 4)\]

15. The sum of 3 consecutive even integers is 360. Write an solve an equation to find each integer

\[
x \\
x + 2 \\
x + 4
\]

\[
\begin{array}{c|c|c|c}
118 & 120 & 120 \\
\hline
2x & 3x + 6 & 3x + 6
\end{array}
\]

16. The length of a rectangle is 4 less than twice the width. The perimeter is 52 in. Write an solve an equation to find the length and width

Length: \[2x + 4\]

width: \[x\]
17. Alex sets up a tutoring business. He charges $4 for coming to your house plus $.50 per problem. He charged Brittany $11.50 for a tutoring session. How many problems did he help her with? (write and solve an equation)

\[
\begin{align*}
0.50x + 4 &= 11.50 \\
-4 & \quad -4 \\
0.50x &= 7.50 \\
\boxed{x &= 15}
\end{align*}
\]

18. Jonathon and Nathan need to go to Utica High. Jonathon leaves at 3:00 and he walks at a pace of 3.2 miles per hour. Nathan leaves at 3:30 and jogs at 4.8 miles per hour. When will Nathan catch Jonathon?

| J | 3.2 | x | 3.2x |
| N | 4.8 | x/2 | 4.8(x/2) |

\[
\begin{align*}
3.2x &= 4.8x - 2.4 \\
-4.8x &= -4.8x \\
-1.6x &= -2.4 \\
x &= 1.5
\end{align*}
\]

Nathan jogs for 1.5 - \frac{1}{2} = 1 \text{ hr}.

1 hour after 3:30 = 4:30

19. Emily and Chloe are at Wendy's. Emily rides her bike north at a rate of 6 miles per hour. Chloe finishes her frosty an hour later and rides her bike south at a rate of 8 miles per hour. When will they be 20 miles apart?

| E | 6x | 6x |
| C | 8x - 1 | 8x - 1 |

\[
\begin{align*}
6x + 8x - 8 &= 20 \\
14x - 8 &= 20 \\
+8 & \quad +8 \\
14x &= 28 \\
\boxed{x &= 2}
\end{align*}
\]

Matching

20. D 5 + (3 + 2) = (5 + 3) + 2  A. inverse property of multiplication
21. C 5 + 3 + 2 = 5 + 2 + 3  B. identity property of multiplication
22. A \frac{1}{3}(3) = 1  C. commutative property
23. E 5 + (-5) = 0  D. associative property
24. F 6 + 0 = 6  E. inverse property of addition
25. B 6(1) = 6  F. Identity property of addition
26. \[
\left[ \frac{x}{4} - \frac{2}{3} = \frac{1}{2} \right]
\]
\[
3x - 8 = 6
\]
\[
\begin{array}{c}
+8 +8 \\
\hline
3x = 14
\end{array}
\]
\[
\begin{array}{c}
x = 14/3
\end{array}
\]

27. \[
\left[ \frac{4}{x} + \frac{7}{2} \right]
\]
\[
24 + x = 14
\]
\[
\begin{array}{c}
-24 -24 \\
\hline
x = -10
\end{array}
\]

28. Write an expression to model each set of evaluation blocks. Then simplify.

29. This code will generate a(n)

A. string  B. image  C. number

30. \[-3(ax-4) = 3 - a(x+6) + 8\]
\[-6x+1a = 3 - 2x-1a + 8\]
\[-6x+1a = -2x - 1 +lox +lox\]
\[
\begin{array}{c}
12 = 4x -1 \\
+1 +1 \\
\hline
13 = 4x
\end{array}
\]
\[
\frac{13}{4} = x = 3.25
\]