

Date: _____

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Student Name/ID#: _____

Total Score:

/ 100

ARCHBISHOP WILLIAMS HIGH SCHOOL - AWHS SUMMER MATH ASSIGNMENTS 2021: SECTION 1

Students Entering ALGEBRA 2 (All levels) - Summer Assignment

INSTRUCTIONS: This assignment is to help prepare you for Algebra 2 by helping you recall key, foundation topics. Answer all questions. SHOW ALL SUPPORTING WORK as required by the problem. Do your own work.

QUESTION 1

 /1

Topic Resource: Order of Operations

Evaluate the expression. Be sure to remember order of operations.

$$(5 + 16) \div 7 - 2$$

QUESTION 2

 /1

Topic Resource: Order of Operations

Evaluate the expression. Be sure to remember order of operations.

$$(10 + 2 - 2) \times 6 - 1$$

QUESTION 3

 /1

Topic Resource: Rational Numbers

Evaluate the expression.

$$(-16) - 6 + (-5)$$

QUESTION 4

 /1

Topic Resource: Comparing Fractions

List the following fractions from least to greatest.

$$\equiv \frac{5}{6} \equiv \frac{1}{2} \equiv 3\frac{7}{10} \equiv \frac{8}{9} \equiv \frac{1}{12}$$

QUESTION 5

 /1

Topic Resource: Evaluating Expressions

Find the value of $2x^2 + x + 3$ when $x = 3$

A 24

B 25

C 12

D 8

QUESTION 6

 /1

Topic Resource: Slope

Find the slope of the line passing through the points $(-2, 7)$ and $(-4, 2)$

A $-\frac{2}{5}$

B $\frac{4}{3}$

C $\frac{5}{2}$

D $\frac{2}{7}$

QUESTION 7

 /1

Topic Resource: Slope

A line has a slope $m = 2$. Determine whether the line passing through $(5, 4)$ and $(3, 5)$ is parallel or perpendicular to the first line.

A Parallel

B Perpendicular

QUESTION 8

 /1**Topic Resource: Slope**

Determine whether the graphs of $y = -3x + 5$ and $2x - 6y - 9$ are parallel or perpendicular lines.

- A ☐ Parallel
- B ☐ Perpendicular

QUESTION 9

 /1**Topic Resource: Systems of Equations**

Solve the system of equations: $4x + 3y = -14$ and $8x - 2y = 12$

- A ☐ (5.5, -0.25)
- B ☐ (-2, -5)
- C ☐ (-5, 2)
- D ☐ (0.25, -5)

QUESTION 10

 /1**Topic Resource: Solving Equations**

Find the solution.

$$\frac{6}{w-3} = \frac{5}{w+3}$$

- A ☐ -33
- B ☐ 24
- C ☐ -22
- D ☐ 33

QUESTION 11

 /1**Topic Resource: Comparing Decimals**

Arrange the following numbers in increasing order.

\equiv 6.782 \equiv 6.7824 \equiv 6.281 \equiv 6.689

QUESTION 12

 /1**Topic Resource: Patterns**

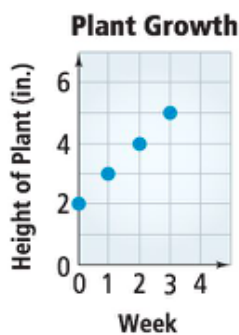
What is the 7th number in this pattern? 8, 13, 18, 23, ...

A 28B 33C 38D 43

QUESTION 13

 /1**Topic Resource: Interpreting Graphs**

Which of the following is the best statement about the graph?

A After 4 weeks, the plant will be 7 inches tall.B The plant was 1 inch tall at the beginning of the experiment.C After 2 weeks, the plant was 3 inches tall.D After 6 weeks, the plant will be 8 inches tall.

QUESTION 14

 /1**Topic Resource: Writing Expressions**

Libby starts with \$20 and saves \$6 each week. Which algebraic expression models the total amount saved? W represents the number of weeks.

A $20 + 6w$ B $20 - 6w$ C $6 + 20w$ D $(6 + 20)w$

QUESTION 15

 /1**Topic Resource: Patterns**

Identify a pattern and find the next three numbers in the pattern 3, 6, 10, 15...

- A ☐ pattern: add 3 to the previous term
next 3 numbers: 18, 21, 24
- B ☐ pattern: add 3, then add 4, then add 5,
and so on
next 3 numbers: 18, 22, 27
- C ☐ pattern: add 3, then add 4, then add 5,
and so on
next 3 numbers: 21, 28, 36
- D ☐ pattern: add 5 to the previous term
next 3 numbers: 20, 25, 30

QUESTION 16

 /1**Topic Resource: Writing Expressions**Which algebraic expression models the word phrase *the quotient of the sum of 2 and a number b, and 3*?

- A ☐ $\frac{2+b}{3}$
- B ☐ $\frac{2}{3} + b$
- C ☐ $2 + \frac{b}{3}$
- D ☐ $\frac{2+3}{b}$

QUESTION 17

 /1**Topic Resource: Simplifying Expressions**Which expression represents the simplest form of $4m + 3(m + n)$

- A ☐ $7m + 3n$
- B ☐ $4m + 3mn$
- C ☐ $3m + 4n$
- D ☐ $7m^2 + 3n$

QUESTION 18

 /1

Topic Resource: Graphing Inequalities

What inequality is shown by the graph below?



A ☐ $x < 2$

B ☐ $x > 2$

C ☐ $x \leq 2$

D ☐ $x \geq 2$

QUESTION 19

 /1
Topic Resource: Simplifying Expressions

Simplify the expression $\frac{5 + \sqrt{(-5)^2 - 4(1)(6)}}{2}$

A ☐ -2

B ☐ 3

C ☐ 8

D ☐ 6

QUESTION 20

 /1
Topic Resource: Rational Numbers

Evaluate the expression.

$$\left(-\frac{1}{5}\right) + \frac{7}{4}$$

A ☐ $-\frac{6}{9}$

B ☐ $\frac{31}{20}$

C ☐ $-\frac{31}{20}$

D ☐ $\frac{6}{9}$

QUESTION 21

 /1

Topic Resource: Simplifying Expressions**Simplify the expression.**

$$12r + 5 + 3r - 5$$

A ☐ $15r$

B ☐ $15r + 10$

C ☐ $15r^2$

D ☐ $25r$

QUESTION 22

 /1**Topic Resource: Simplifying Expressions****Simplify the expression.**

$$-10(1 - 9x) + 6(x - 10)$$

A ☐ $96x - 70$

B ☐ $-84x - 70$

C ☐ $-134x$

D ☐ *No solution*

QUESTION 23

 /1**Topic Resource: Simplifying Expressions****Simplify the expression.**

$$(12a^5 - 6a - 10a^3) - (10a - 2a^5 - 14a^4)$$

A ☐ $14a^5 - 14a^4 - 10a^3 - 16a$

B ☐ $10a^5 - 14a^4 - 10a^3 - 4a$

C ☐ $14a^5 + 14a^4 - 10a^3 - 16a$

D ☐ $128a^2$

QUESTION 24

 /1

Topic Resource: Slope

When finding the slope of $y = 2 - 5x$, Christine and Meg get different answers. Christine says the slope is 2, but Meg says the slope is -5.

Who is correct?

A ☐

Christine

B ☐

Meg

C ☐

Neither, the slope is 5

D ☐

Neither, the slope is -2

QUESTION 25

/1

Topic Resource: Slope

Find the slope of a line parallel to a line that contains the points (-2, 6) and (-4, 3).

A ☐

$\frac{2}{3}$

B ☐

$-\frac{2}{3}$

C ☐

$-\frac{3}{2}$

D ☐

$\frac{3}{2}$

QUESTION 26

/1

Topic Resource: Rounding

Kristine and Phil rounded 321.987 to the nearest hundredths place. Kristine rounded and got 321.98. Phil rounded and got 321.99. Who answered correctly?

A ☐

Neither, it is 321.

B ☐

Neither, it is 321.9.

C ☐

Kristine

D ☐

Phil

QUESTION 27

/1

Topic Resource: Graphing Inequalities

Emily and Erin were graphing the inequality $x < 8$. Emily graphed it with an open circle, but Erin graphed it with a closed circle. Who is correct?

A ☐

Emily

B ☐

Erin

C ☐

Both

D ☐

Neither

QUESTION 28

 /1**Topic Resource: Slope**

Write the standard form of the equation of the line passing through the point $(2, 5)$ and perpendicular to the line $4x - y = 2$

A ☐ $y = \frac{1}{4}x + \frac{11}{2}$

B ☐ $y = 4x - 3$

C ☐ $y = 4x + 3$

D ☐ $y = -\frac{1}{4}x + \frac{11}{2}$

QUESTION 29

 /1**Topic Resource: Simplifying Expressions**

Multiply $(4x + 7)(2x + 1)$ and simplify.

A ☐ $26x + 7$

B ☐ $8x^2 + 18x + 7$

C ☐ $6x^2 + 18x + 7$

D ☐ $33x$

QUESTION 30

 /1**Topic Resource: Simplifying Expressions**

Multiply $(x - 1)(x + 9)$ and simplify.

A ☐ $x^2 + 8x + 9$

B ☐ $x^2 - 8x + 9$

C ☐ $x^2 - 8x - 9$

D ☐ $x^2 + 8x - 9$

QUESTION 31

 /1

Topic Resource: Properties of Exponents

Simplify the expression $(5x^2)(6x^8)$.

A $30x^{16}$

B $30x^{10}$

C $11x^{16}$

D $11x^{10}$

QUESTION 32

 /1**Topic Resource: Properties of Exponents**

Simplify the expression $\frac{x^6}{x^2}$.

A x^3

B x^4

C x^8

D x^{12}