

Name: \_\_\_\_\_

Class/Period: \_\_\_\_\_

Assignment: HW #1A Math 1

- 1 Simplify the following using the properties of integer exponents.

$$4^{-2} \times 4^8$$

- A  $4^6$
- B  $4^{16}$
- C  $\frac{1}{4^6}$
- D  $\frac{1}{4^{16}}$

- 2 The expression  $\frac{24x^6y^3}{-6x^3y}$  is equivalent to

- A  $-4x^2y^3$
- B  $-4x^3y^3$
- C  $-4x^9y^4$
- D  $-4x^3y^2$

- 3 What is the product of  $3a^2b$  and  $-2ab^3$ ?

- A  $a^2b^3$
- B  $a^3b^4$
- C  $-6a^2b^3$
- D  $-6a^3b^4$

- 4 The expression  $(x^2z^3)(xy^2z)$  is equivalent to

- A  $x^2y^2z^3$
- B  $x^3y^2z^4$
- C  $x^3y^3z^4$
- D  $x^4y^2z^5$

- 5 Simplify the following using the properties of integer exponents.

$$7^{-8} \times 7^5$$

- A  $7^3$
- B  $7^{13}$
- C  $\frac{1}{7^{40}}$
- D  $\frac{1}{7^3}$

- 6 The table below shows the U.S. average life expectancy at birth, in years, in various decades.

<b>Years since 1930</b>	<b>Life Expectancy at Birth</b>
10	62.9
20	68.2
30	69.7
40	70.8
50	73.7
60	75.4
70	77.0
80	78.7

What is the meaning of the slope of the linear best-fit equation for the data?

- A The predicted average life expectancy at birth in 1930 was about 62.7 years.
  - B The predicted average life expectancy at birth in 1930 was about 57.6 years.
  - C The average life expectancy at birth increases by about 6.7 each year.
  - D The average life expectancy at birth increases by about 0.2 each year.
- 7 Priscilla has a piece of rope. She ties a knot in the rope and measures the new length of the rope. She then repeats this process several times. Some of the data collected are listed in the table below.

<b>Number of Knots (<math>x</math>)</b>	<b>2</b>	<b>5</b>	<b>7</b>	<b>9</b>	<b>11</b>
<b>Length of Rope in cm (<math>y</math>)</b>	<b>108</b>	<b>92</b>	<b>88</b>	<b>82</b>	<b>77</b>

Which equation represents the line of best fit for this data?

- A  $y = -3.3x + 112.1$
  - B  $y = 112.1x - 3.3$
  - C  $y = -0.98x + 112.1$
  - D  $y = 112.1x - 0.96$
- 8 The results of a linear regression are show below.

$$y = ax + b$$
$$a = -0.00152$$
$$b = 2.61317$$
$$r = -0.37228$$
$$r^2 = 0.13859$$

Which phrase best describes the relationship between  $x$  and  $y$ ?

- A Strong negative correlation
- B Strong positive correlation
- C Weak negative correlation
- D Weak positive correlation

- 9 The table below shows 6 students' overall averages and their averages in their math class.

<b>Overall Student Average</b>	92	98	84	80	75	82
<b>Math Class Average</b>	91	95	85	85	75	78

If a linear model is applied to these data, which statement best describes the correlation coefficient?

- A It is close to  $-1$ .
- B It is close to  $1$ .
- C It is close to  $0$ .
- D It is close to  $0.5$ .

- 10 After performing analyses on a set of data, Jackie examined the scatter plot of the residual values for each analysis. Which scatter plot indicates the best linear fit for the data?

