

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

Instructor: Andreas Lazari  
Course: Math1111-Summer2018

Assignment: Section P.2 Homework

1. Evaluate the following exponential expression.

$$7^2 \cdot 4 = 49(4) = 196$$

$$7^2 \cdot 4 = \underline{196} \quad (\text{Simplify your answer.})$$

2. Evaluate the given exponential expression.

$$(-3)^6 = 729$$

use TI-83/84

$$(-3)^6 = \underline{729}$$

3. Evaluate the expression.

$$-5^2 = -(25) = -25$$

$$-5^2 = \underline{-25}$$

4. Evaluate the given exponential expression.

$$-7^0 = -(1) = -1$$

$$-7^0 = \underline{-1}$$

5. Simplify the following expression.

$$2^{-2} = \frac{1}{2^2} = \frac{1}{4}$$

$$2^{-2} = \underline{\frac{1}{4}} \quad (\text{Type a simplified fraction.})$$

6. Use properties of exponents to simplify the given expression. Express the answer in exponential form.

$$2^4 \cdot 2^4 = 2^{4+4} = 2^8$$

$$2^4 \cdot 2^4 = \underline{2^8}$$

7. Evaluate the given exponential expression.

$$(2^2)^2 = 2^{2(2)} = 2^4 = 16$$

$$\text{or } (2^2)^2 = (4)^2 = 16.$$

$$(2^2)^2 = \underline{16}$$

8. Evaluate the given exponential expression.

$$\frac{6^5}{6^2} = 6^{5-2} = 6^3 = 216$$

$$\frac{6^5}{6^2} = \underline{216} \quad (\text{Type an integer or a fraction. Simplify your answer.})$$

9. Evaluate the given exponential expression.

$$4^{-4} \cdot 4 = 4^{-4+1} = 4^{-3} = \frac{1}{4^3} = \frac{1}{64}$$

$$4^{-4} \cdot 4 = \frac{1}{64} \quad (\text{Type an integer or a fraction.})$$

10. Evaluate the given exponential expression.

$$\frac{5^2}{5^7} = 5^{2-7} = 5^{-5} = \frac{1}{5^5} = \frac{1}{3125}$$

$$\frac{5^2}{5^7} = \frac{1}{3125} \quad (\text{Type an integer or a fraction. Simplify your answer.})$$

11. Simplify the given exponential expression.

$$(-4x^4y^2)^5 = (-4)^5(x^4)^5(y^2)^5 = -1024x^{4(5)}y^{2(5)} = -1024x^{20}y^{10}$$

$$(-4x^4y^2)^5 = -1024x^{20}y^{10}$$

12. Simplify the exponential expression.

$$(-8x^3y)(-5x^8y^4) = 40x^{3+8}y^{1+4} = 40x^{11}y^5$$

$$(-8x^3y)(-5x^8y^4) = 40x^{11}y^5$$

13. Simplify the exponential expression.

$$\frac{-12x^{12}y^7}{3x^3y^2} = -4x^{12-3}y^{7-2} = -4x^9y^5$$

$$\frac{-12x^{12}y^7}{3x^3y^2} = -4x^9y^5 \quad (\text{Simplify your answer. Use positive exponents only.})$$

14. Simplify the exponential expression.

$$\left(\frac{7x^4}{y}\right)^{-3} = \frac{7^{-3}(x^4)^{-3}}{y^{-3}} = \frac{7^{-3}x^{-12}}{y^{-3}} = \frac{y^3}{7^3x^{12}} = \frac{y^3}{343x^{12}}$$

$$\left(\frac{7x^4}{y}\right)^{-3} = \frac{y^3}{343x^{12}} \quad (\text{Simplify your answer. Use positive exponents only.})$$

15. Write the number in decimal notation without the use of exponents.

$$4.9 \times 10^6 = 4,900,000$$

$$4.9 \times 10^6 = 4,900,000$$

16. Write the number in decimal notation without the use of exponents.

$$5 \times 10^{-5} = 0.00005$$

$$5 \times 10^{-5} = \underline{0.00005}$$

17. Express the following number in scientific notation.

4,800,000

$$4,800,000 = \underline{4.8 \times 10^6}$$

(Use the multiplication symbol in the math palette as needed.)

18. Write the number in scientific notation.

0.00071

$$0.00071 = \underline{7.1 \times 10^{-4}}$$

(Use the multiplication symbol in the math palette as needed.)

19. Write the answers in scientific notation. If necessary, round the decimal factor in your scientific notation answer to two decimal places.

$$(1.2 \times 10^{16})(2.6 \times 10^{-14}) = (1.2)(2.6) 10^{16-14} = 3.12 \times 10^2$$

$$(1.2 \times 10^{16})(2.6 \times 10^{-14}) = \underline{3.12 \times 10^2}$$

(Use scientific notation. Use the multiplication symbol in the math palette as needed. Round to two decimal places as needed.)

20. Perform the indicated computation. Write the answer in scientific notation.

$$\frac{2.4 \times 10^8}{3 \times 10^{-2}} = \frac{2.4}{3} \times 10^8 \times 10^2 = 0.8 \times 10^{8+2} = 0.8 \times 10^{10} = 0.8 \times 10 \times 10^9 = \underline{8 \times 10^9}$$

$$\frac{2.4 \times 10^8}{3 \times 10^{-2}} = \underline{8 \times 10^9}$$

(Use the multiplication symbol in the math palette as needed.)

1. 196

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2. 729

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3. -25

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4. -1

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5.  $\frac{1}{4}$

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6.  $2^8$

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7. 16

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8. 216

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9.  $\frac{1}{64}$

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10.  $\frac{1}{3125}$

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11.  $-1024x^{20}y^{10}$

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12.  $40x^{11}y^5$

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13.  $-4x^9y^5$

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14.  $\frac{y^3}{343x^{12}}$

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15. 4,900,000

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16. 0.00005

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17.  $4.8 \times 10^6$

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18.  $7.1 \times 10^{-4}$

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19.  $3.12 \times 10^2$

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20.  $8 \times 10^9$

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