

3 Powers: Exam Review

1. Express the following powers as repeated multiplication and standard form.



- a) 5^2
- b) 2^3
- c) 1^4
- d) 8^0 (standard only)
- e) $(-2)^3$
- f) -5^2
- g) $-(-2)^3$
- h) $-(-4)^0$ (standard only)
- i) 25^1 (standard only)

2. Identify any errors and correct them.

- a) $4^3 = 12$
- b) $(-2)^9$ is negative
- c) $(-9)^2$ is negative
- d) $3^2 = 2^3$
- e) $(-10)^2 = 100$

3. Complete the following power laws.

- a) $x^a \cdot x^b =$
- b) $\frac{x^a}{x^b} =$
- c) $(x^a)^b =$

d) $\left(\frac{x}{y}\right)^a =$

e) $[x \cdot y]^a =$

3. Write each expression as a single power. Then, evaluate each power.

a) $4^{10} \div 4^8$

b) $3^2 \cdot 3^1$

c) $(2^3)^2$

d) $\frac{(-8)^6}{(-8)^4}$

e) $\left(\frac{2}{3}\right)^3$

f) $[4 \cdot x]^2$

g) $(10)^2 \cdot (10)^3 \div (10)^2$

4. Identify the base, coefficient, power, and exponent in the following expression.



$5x^2$

5. Predict, without calculating the answer, whether each answer is positive or negative.

a) -7^3 b) $(-2)^8$

c) -2^8 d) -6^3

e) $(-6)^4$ f) $-(-6)^4$

g) $-(-6^4)$ h) $-(-3)^{-2}$

6. Use your BEDMAS rules to find the answers to the following questions. Make sure to show all work, steps and stuff to support your answer.

a) $2^2 + 4$

b) $2^2 - 4^2$

c) $(3 + 4)^2 + (4 - 6)^3$

d) $(-6) + 4^0 \cdot (-2)$

e) $(-4 - 3)^2 + (-3)^2$

f) $24 - 2^2 + (7^2 - 5^2)$

g) $-30 - (7 - 4)^3$

h) $(8^2 + 5^0) \div (-5)$

7. True or False ... explain.

$(5 + 8)^2 = 5^2 + 8^2$



8. Corin answered the following skill-testing question to win free movie tickets:

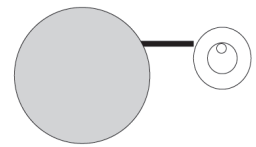
$120 + 20^3 \div 10^3 + 12 \cdot 120$

His answer was 1568.
Did Corin win the movie tickets? Show your work.



9. **Birds Eye View Puzzle**

This is the view through the eye of a bird.
What does the bird see?



1. $5 \times 5 \times 5 \times 5$

2. 2^3

3. $\frac{3^6}{3^2}$

4. $4 \times 4 \times 4 \times 4 \times 4$

5. $(-2)^3$

6. $(-2) + 4 \div 2$

7. $(5^2)^3$

8. $3^2 - 2^3$

9. $10^2 \times 10^3$

10. $5 + 3^0$

11. $4^7 \div 4$

A 100 000

P 5⁶

S 0

E 1

F 3⁴

G 6

I 8

O 4⁶

N 4⁵

R 5⁴

Y -8

9 7 8 1 6 11 4

3 1 5 2 4 10 9 4 8 10 10