

**Final Exam Review Quiz****Simplify. Leave your answer in exponential form.**

1.  $8^1 \times 8^6$   
a.  $8^6$                       b.  $64^7$                       c.  $8^5$                       d.  $8^7$

**Simplify:**

2.  $(wc^7)(-8w^3c^5)$   
a.  $-8w^4c^{12}$                       c.  $-8w^4c^{11}$   
b.  $-8w^3c^{12}$                       d.  $-8w^3c^{11}$
3.  $(c^8)^4$   
a.  $c^{32}$                       b.  $c^{12}$                       c.  $c^2$                       d.  $c^4$

**Simplify. Write your answer using exponents.**

4.  $(2qr^5)^3(qr)^6$   
a.  $2q^9r^{21}$                       c.  $8q^9r^{11}$   
b.  $2q^4r^{21}$                       d.  $8q^9r^{21}$

**Simplify the expression using positive exponents.**

5.  $\left(\frac{-4}{q}\right)^8$   
a.  $\frac{32}{q^8}$                       c.  $\frac{32}{8q}$   
b.  $\frac{65,536}{8q}$                       d.  $\frac{65,536}{q^8}$

6. Simplify  $\frac{3^8}{3^5}$ .  
a.  $3^4$                       b.  $3^{13}$                       c.  $3^3$                       d.  $3^5$

**Simplify:**

7.  $2^2 + 9 + 7^0$   
a. 252                      b. 36                      c. 14                      d. 20

8. Which expression is equivalent to  $8^{-6} \times 8^9$ ?
- a.  $\frac{1}{8^3}$                       b.  $\frac{1}{8^{54}}$                       c.  $8^{15}$                       d.  $8^3$
9. Write 0.000732 in scientific notation.
- a.  $732 \times 10^{-6}$                       c.  $0.732 \times 10^{-3}$   
 b.  $732 \times 10^{-5}$                       d.  $7.32 \times 10^{-4}$
10. Metal rods get shorter when they are cooled. In a science class experiment, identically-sized metal rods were cooled in ice-baths. The rods were all painted so there were no clues as to what metal they were. Their length changes are shown in the table below.

Rod	Change in Length (m)
#1	$-1.0 \times 10^{-2}$
#2	$-2.1 \times 10^{-3}$
#3	$-1.9 \times 10^{-3}$
#4	$-1.6 \times 10^{-2}$

The teacher told the students that the rod that showed the greatest change in length would be the copper rod. Which rod was the copper rod?

- a. rod #2                                      c. rod #4  
 b. rod #1                                      d. rod #3
11. Find the degree of the polynomial  $-3x^4 + 2x^3 + 7$ .
- a. 4    c. 6  
 b. 1    d. 7
12. Which expression is NOT a polynomial?
- a.  $\frac{g+4}{g-2} - \frac{g^{-3}}{4}$                                       c.  $\frac{1}{2}g^3 + \frac{g+3}{4}$   
 b.  $\frac{g-4}{2} - \frac{g}{2}$                                       d.  $4g^3 - g^4 + 2g + 3$

**Find the sum.**

13.  $(2a^7 + 3a^3 - 6) + (-2a^3 + 4 + 6a^7)$
- a.  $8a^7 + a^3 - 2$                                       c.  $a^7 + 8a^3 + 2$   
 b.  $a^7 + 8a^3 - 2$                                       d.  $8a^7 + a^3 + 2$

**Find the difference.**

14.  $(6b^3 + 3b^2 + 8) - (2b^3 - 8b^2 + 6b - 5)$
- a.  $4b^3 + 11b^2 - 6b + 13$                       c.  $11b^3 - 4b^2 - 6b + 3$   
 b.  $4b^3 + 11b^2 + 6b - 13$                       d.  $11b^3 + 4b^2 - 6b - 3$

**Find the product.**

15.  $(x + 5)(x^2 - 2x + 3)$
- a.  $x^3 + 3x^2 - 7x + 15$                       c.  $x^3 + 3x^2 - 10x + 15$   
 b.  $x^3 - 2x^2 + 15$                                 d.  $x^2 - 3x + 15$

**Find the product.**

16.  $(5x^2 - 5)^2$
- a.  $25x^4 - 25$                                       c.  $25x^4 - 50x^2 + 25$   
 b.  $25x^2 - 10x + 25$                             d.  $25x^4 - 50x^2 - 25$

**Solve the equation.**

17.  $16g^2 + 40g + 25 = 0$
- a.  $g = -\frac{4}{5}$     c.  $g = -\frac{5}{4}$   
 b.  $g = \frac{4}{5}$     d.  $g = \frac{5}{4}$

**Solve the equation.**

18.  $x^3 + 4x^2 - 25x - 100 = 0$
- a.  $-4, 25$     c.  $4, 5$   
 b.  $-5, 4, 5$     d.  $-4, -5, 5$

**Solve the quadratic equation.**

19.  $x^2 + 8x + 14 = 0$
- a.  $4 + \sqrt{2}, 4 - \sqrt{2}$                                 c.  $8 + 2\sqrt{2}, 8 - 2\sqrt{2}$   
 b.  $-8 + 2\sqrt{2}, -8 - 2\sqrt{2}$                     d.  $-4 + \sqrt{2}, -4 - \sqrt{2}$

**Simplify:**

20.  $\sqrt{300}$
- a.  $10\sqrt{30}$                       b.  $10\sqrt{3}$                       c.  $\sqrt{30}$                       d.  $3\sqrt{10}$

21.  $\sqrt{200}$   
 a.  $10\sqrt{2}$       b.  $5\sqrt{2}$       c.  $50\sqrt{2}$       d.  $20\sqrt{2}$

**Simplify:**

22.  $\sqrt{30} \cdot \sqrt{12}$   
 a.  $9\sqrt{20}$       b.  $12\sqrt{10}$       c.  $6\sqrt{10}$       d.  $3\sqrt{40}$

**Simplify:**

23.  $7\sqrt{6} + 8\sqrt{6} - 3\sqrt{6}$   
 a.  $\sqrt{72}$       b.  $12\sqrt{6}$       c. 72      d.  $18\sqrt{6}$

**Solve:**

24.  $\sqrt{x+3} = -6$   
 a. 33      c. no real number solutions  
 b. 33, -39      d. -39

25. Find the midpoint of (4, 16) and (9, -2).  
 a.  $(\frac{13}{2}, 7)$       c.  $(10, \frac{7}{2})$   
 b. (13, 14)      d. (-13, -14)

**Simplify:**

26.  $\frac{-3x + 3x^2}{-24x + 24}$   
 a.  $-\frac{x}{8}$       c.  $\frac{x^2}{16}$   
 b.  $\frac{x - x^2}{8x - 8}$       d.  $\frac{1 - x}{16}$

**Find the product.**

27.  $(x-2) \cdot \frac{x+4}{x^2-4}$   
 a.  $\frac{x+4}{x+2}$       c.  $\frac{x+4}{x-2}$   
 b.  $\frac{x+4}{(x-2)(x^2-4)}$       d. 2

**Find the difference.**

28.  $\frac{c+2}{d} - \frac{c-1}{d}$

a.  $\frac{1}{d}$

b.  $\frac{3}{d}$

c.  $\frac{2c+3}{d}$

d.  $\frac{2c+1}{d}$

29.  $\frac{5}{x+3} - \frac{9}{x-3}$

a.  $\frac{-4x-42}{x^2-9}$

b.  $\frac{-4}{x-3}$

c.  $\frac{1}{x^2-9}$

d.  $\frac{-4x-42}{x+3}$

**Solve the equation:**

30.  $\frac{x-6}{x-3} = \frac{x+8}{x-2}$

a.  $\frac{36}{13}$

b.  $\frac{12}{13}$

c. 12

d. 4

**Final Exam Review Quiz  
Answer Section**

1. ANS: D                   PTS: 1
2. ANS: A                   PTS: 1
3. ANS: A                   PTS: 1
4. ANS: D                   PTS: 1
5. ANS: D                   PTS: 1
6. ANS: A                   PTS: 1
7. ANS: B                   PTS: 1
8. ANS: D                   PTS: 1
9. ANS: D                   PTS: 1
10. ANS: C                   PTS: 1
11. ANS: A                   PTS: 1
12. ANS: A                   PTS: 1
13. ANS: A                   PTS: 1
14. ANS: A                   PTS: 1
15. ANS: A                   PTS: 1
16. ANS: C                   PTS: 1
17. ANS: C                   PTS: 1
18. ANS: D                   PTS: 1
19. ANS: D                   PTS: 1
20. ANS: B                   PTS: 1
21. ANS: A                   PTS: 1
22. ANS: C                   PTS: 1
23. ANS: B                   PTS: 1
24. ANS: C                   PTS: 1
25. ANS: A                   PTS: 1
26. ANS: A                   PTS: 1
27. ANS: A                   PTS: 1
28. ANS: B                   PTS: 1
29. ANS: A                   PTS: 1
30. ANS: A                   PTS: 1