

## 7.1 Practice

Name: Key

Simplify each expression.

1.  $13^0 = 1$

2.  $5^{-3} = \frac{1}{5^3}$  or  $\frac{1}{125}$

3.  $\frac{3}{3^{-4}} = 3^5$  or  $243$

4.  $\frac{2}{4^{-4}} = 2 \cdot 4^4 = 2 \cdot 256 = 512$

5.  $-(7)^{-2} = -\frac{1}{7^2} = -\frac{1}{49}$

6.  $46^{-1} = \frac{1}{46}$

7.  $-6^0 = -1$

8.  $-(12x)^{-2} = -\frac{1}{12^2 x^2} = -\frac{1}{144x^2}$

9.  $\frac{1}{8^0} = \frac{1}{1} = 1$

10.  $6bc^0 = 6b$

11.  $-(11x)^0 = -1$

12.  $\left(\frac{2}{9}\right)^{-2} = \frac{9^2}{2^2} = \frac{81}{4}$

13.  $3m^{-8}p^0 = \frac{3}{m^8}$

14.  $\frac{5a^{-4}}{2c} = \frac{5}{2a^4c}$

15.  $\frac{-3k^{-3}(mn)^3}{p^{-8}} = \frac{-3m^3n^3p^8}{k^3}$

16.  $\left(\frac{2m}{3n}\right)^{-3} = \frac{27n^3}{8m^3}$

17.  $8^{-2}q^3r^{-5} = \frac{q^3}{64r^5}$

18.  $-(10a)^{-4}b^0 = \frac{1}{-10,000a^4}$

19.  $\frac{11xy^{-1}z^0}{v^{-3}} = \frac{11xv^3}{y}$

20.  $\frac{5m^{-1}}{9(ab)^{-4}c^7} = \frac{5a^4b^4}{9c^7m}$

Evaluate each expression for  $a = -4$ ,  $b = 3$ , and  $c = 2$ .

21.  $3a^{-1} = \frac{3}{-4} = \boxed{-\frac{3}{4}}$

22.  $b^{-3} = \frac{1}{3^3} = \boxed{\frac{1}{27}}$

23.  $4a^2b^{-2}c^3 = \frac{4(-4)^2 \cdot 2^3}{3^2} = \frac{4 \cdot 16 \cdot 8}{9} = \boxed{\frac{512}{9}}$

24.  $9a^0c^4 = 9 \cdot 1 \cdot 2^4 = 9 \cdot 16 = \boxed{144}$

25.  $-a^{-2} = -\frac{1}{(-4)^2} = \boxed{-\frac{1}{16}}$

26.  $(-c)^{-2} = \frac{1}{(-2)^2} = \boxed{\frac{1}{4}}$

## 7.2 Practice

Name: Key

Rewrite each expression using each base only once.

- |   |  |  |
|---|--|--|
| 1. $4^5 \cdot 4^3 = 4^8$                  | 2. $2^4 \cdot 2^6 \cdot 2^2 = 2^{12}$  | 3. $5^6 \cdot 5^{-2} \cdot 5^{-1} = 5^3$ |
| 4. $10^{-4} \cdot 10^4 \cdot 10^2 = 10^2$ | 5. $7^9 \cdot 7^3 \cdot 7^{-10} = 7^2$ | 6. $9^2 \cdot 9^{-8} \cdot 9^6 = 9^0$    |

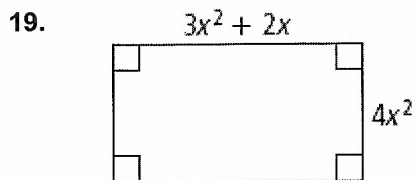
Simplify each expression.

- |   |  |   |
|---|--|---|
| 7. $z^8 z^5 = z^{13}$                                       | 8. $-4k^{-3} \cdot 6k^4 = -24k$                        | 9. $(-5b^3)(-3b^6) = 15b^9$                           |
| 10. $(13x^{-8})(3x^{10}) = 39x^2$                           | 11. $(-2h^5)(4h^{-3}) = -8h^2$                         | 12. $-8n \cdot 11n^9 = -88n^{10}$                     |
| 13. $mn^2 \cdot m^2 n^{-4} \cdot mn^{-1} = \frac{m^4}{n^3}$ | 14. $(6a^3 b^{-2})(-4ab^{-8}) = \frac{-24a^4}{b^{10}}$ | 15. $(12mn)(-m^3 n^2 p^5)(2m) = \frac{-24m^5 p^5}{n}$ |

Complete each equation.

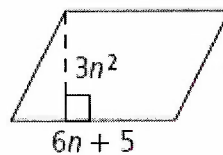
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|--|--|--|
| 16. $9^{-2} \cdot 9^4 = 9^{\square}$<br><span style="margin-left: 100px;">2</span> | 17. $5^{\square} \cdot 5^3 = 5^2$<br><span style="margin-left: 100px;">-1</span> | 18. $2^8 \cdot 2^{\square} = 2^{-2}$<br><span style="margin-left: 100px;">-10</span> |
|--|--|--|

Find the area of each figure. Use your book to find any area formulas you don't know.



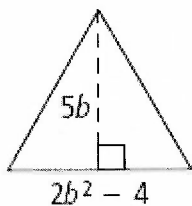
$$4x^2(3x^2 + 2x) = 12x^4 + 8x^3$$

20.



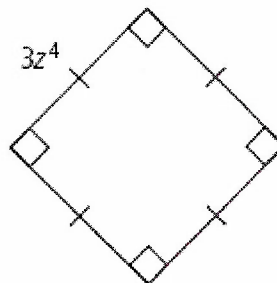
$$3n^2(6n + 5) = 18n^3 + 15n^2$$

21.



$$\begin{aligned} \frac{1}{2}(2b^2 - 4) \cdot 5b \\ (b^2 - 2)5b \\ 5b^3 - 10b \end{aligned}$$

22.



$$3z^4 \cdot 3z^4 = 9z^8$$