Answer Key: Page 3-4

Simplify the expressions

1. $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x =?$
2. $3 \cdot x \cdot x \cdot x \cdot 2 \cdot x \cdot x =?$
3. $2x \cdot x^4 \cdot x \cdot 5 =?$
4. $(-3)^4 =?$
5. $-16^2 =?$
6. $\left(\frac{3}{5}\right)^3 =?$
7. $-(-10)^3 =?$

Use the properties of exponents to simplify the expressions:

8. $(y \cdot y \cdot y)(y)(y \cdot y^2) =?$
9. $z^{10}z^3 = ?$
10. $w^6w^2w^{12} = ?$
11. $c^3c^4(r \cdot r \cdot r) = ?$
12. $-3x^62x^24x = ?$
13. $g^6t^{10}x^2gt^3x = ?$

Use the properties of exponents to simplify the expressions:

14. $(x^2)^3 =?$
15. $(y^5)^{-2} =?$
16. $(w^3)^4(w^2)^8(w)^3 = ?$
17. $(-a^2)^3 =?$
18. $(7x^8)^2 =?$
19. $(4y^5z)^2 =?$
20. $(v^3g^8x^{-4}y^2)^3 = ?$

Use the properties of exponents to simplify the expressions:

21. $\frac{x \cdot x \cdot x \cdot x \cdot x \cdot x}{x \cdot x \cdot x} = ?$
22. $\frac{y \cdot y^2}{y \cdot y \cdot y} = ?$
23. $\frac{10^8}{10^{12}} = ?$
24. $\frac{x^3}{x^{10}} = ?$
25. $\frac{a^5 b^8}{a^{10} b^3} = ?$
26. $\frac{-2t^4 h^7 x^8}{8t^3 h^5 x^9} = ?$

Use the properties of exponents to simplify the expressions:

27. $\frac{x^3\, y^{-4}}{x^{-1} y^{-4}} = ?$
28. $\frac{a^{-1} b^{-3}}{a^{-2} b^2} = ?$
29. $\frac{(x^2 y)^{-2}}{(2^{-1} x y^{-3})^4} = ?$
30. $\frac{(6x^2 y^{-5})^{-2} (2x^2 y)^4}{(-5x^{-4})^{-2} (3x^{-6} y^3)^2} = ?$

Simplify the expressions

1. $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x = ?$ $answer: x^8$
2. $3 \cdot x \cdot x \cdot x \cdot 2 \cdot x \cdot x = ?$ $answer: 6x^5$
3. $2x \cdot x^4 \cdot x \cdot 5 = ?$ $answer: 10x^6$
4. $(-3)^4 = ?$ $answer: 81$
5. $-16^2 = ?$ $answer: -256$
6. $\left(\frac{3}{5}\right)^3 = ?$ $answer: \frac{27}{125}$
7. $-(-10)^3 = ?$ $answer: 1000$

Use the properties of exponents to simplify the expressions:

8. $(y \cdot y \cdot y)(y)(y \cdot y^2) = ?$ $answer: y^7$
9. $z^{10}z^3 = ?$ $answer: z^{13}$
10. $w^6w^2w^{12} = ?$ $answer: w^{20}$
11. $c^3c^4(r \cdot r \cdot r) = ?$ $answer: c^7r^3$
12. $-3x^62x^24x = ?$ $answer: -24x^9$
13. $g^6t^{10}x^2gt^3x = ?$ $answer: g^7t^{13}x^3$

Use the properties of exponents to simplify the expressions:

14. $(x^2)^3 = ?$ $answer: x^6$
15. $(y^5)^{-2} = ?$ $answer: y^{-10}$
16. $(w^3)^4(w^2)^8(w)^3 = ?$ $answer: w^{31}$
17. $(-a^2)^3 = ?$ $answer: -a^6$
18. $(7x^8)^2 = ?$ $answer: 49x^{16}$
19. $(4y^5z)^2 = ?$ $answer: 16y^{10}z^2$
20. $(v^3g^8x^{-4}y^2)^3 = ?$ $answer: v^9g^{24}x^{-12}y^6$

Use the properties of exponents to simplify the expressions:

21. $\frac{x \cdot x \cdot x \cdot x \cdot x \cdot x}{x \cdot x \cdot x} = ?$ $answer: x^3$

22. $\frac{y \cdot y^2}{y \cdot y \cdot y} = ?$ $answer: 1$

23. $\frac{10^8}{10^{12}} = ?$ $answer: \frac{1}{10^4}$

24. $\frac{x^3}{x^{10}} = ?$ $answer: \frac{1}{x^7}$

25. $\frac{a^5 b^8}{a^{10} b^3} = ?$ $answer: \frac{b^5}{a^5}$

26. $\frac{-2t^4 h^7 x^8}{8t^3 h^5 x^9} = ?$ $answer: -\frac{1th^2}{4x}$

Use the properties of exponents to simplify the expressions:

27. $\frac{x^3\, y^{-4}}{x^{-1} y^{-4}} = ?$ $answer: x^4$

28. $\frac{a^{-1} b^{-3}}{a^{-2} b^2} = ?$ $answer: \frac{a}{b^5}$

29. $\frac{(x^2 y)^{-2}}{(2^{-1} x y^{-3})^4} = ?$ $answer: \frac{16y^{10}}{x^8}$

30. $\frac{(6x^2 y^{-5})^{-2} (2x^2 y)^4}{(-5x^{-4})^{-2} (3x^{-6} y^3)^2} = ?$ $answer: \frac{100x^8 y^8}{81}$