

Lesson 3 Homework Practice

Multiply and Divide Monomials

Simplify. Express using exponents.

1. $k^8 \cdot k$

k^9

2. $t^7 \cdot t^6$

t^{13}

3. $2w^2 \cdot 5w^2$

$10w^4$

4. $3e^3 \cdot 7e^3$

$21e^6$

5. $4r^4(-4r^3)$

$-16r^7$

6. $(-3l^2w^3)(2lw^4)$

$-6l^3w^7$

7. $(-11w^4)(-5w^3x^4)$

$55w^7x^4$

8. $(-4b^6)(-b^2c^3)$

$4b^8c^3$

9. $(10t^4v^5)(3t^2v^5)$

$30t^6v^{10}$

10. $\frac{5^9}{5^3}$

5^6

11. $\frac{3^8}{3}$

3^7

12. $\frac{b^6}{b^4}$

b^2

13. $\frac{g^{15}}{g^7}$

g^8

14. $\frac{18v^5}{9v}$

$2v^4$

15. $\frac{24a^6}{6a^5}$

$4a$

16. $y^6 \div y^3$

y^3

17. $\frac{n^{19}}{n^{11}}$

n^8

18. $\frac{95^{21}}{95^{18}}$

95^3

19. Simplify $\frac{5^5 \cdot 6^3 \cdot 8^{10}}{5^3 \cdot 6 \cdot 8^9}$.

$5^2 \cdot 6^2 \cdot 8^{\text{or}} = 7,200$

20. **BONUSES** A company has set aside 10^7 dollars for annual employee bonuses. If the company has 10^4 employees and the money is divided equally among them, how much will each employee receive?

$\frac{10^7}{10^4} = 10^3 = \boxed{\$1,000}$

21. **CAR LOANS** After making a down payment, Mr. Valle will make 6^2 monthly payments of 6^3 dollars each to pay for his new car. What is the total of the monthly payments?

$6^2 \cdot 6^3 = 6^5 = \boxed{\$7,776}$

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Same base stays!

Lesson 3 Skills Practice

Multiply and Divide Monomials

Simplify. Express using exponents.

1. $5^9 \cdot 5^3$

5^{12}

2. $3^8 \cdot 3$

3^9

3. $c \cdot c^6$

c^7

4. $m^5 \cdot m^2$

m^7

5. $3x \cdot 4x^4$

$12x^5$

6. $(2h^7)(7h)$

$14h^8$

7. $-5d^6(8d^6)$

$-40d^{12}$

8. $(6k^5)(-k^4)$

$-6k^9$

9. $(-w)(-10w^3)$

$10w^4$

10. $-7z^4(-3z^8)$

$21z^{12}$

11. $bc^3(b^2c)$

b^3c^4

12. $3a^4 \cdot 6a^2$

$18a^6$

13. $3m^3n^2(8mn^3)$

$24m^4n^5$

14. $7t^5(-6t^5)$

$-42t^{10}$

15. $(3ab^2)(a^2c^5)$

$3a^3b^2c^5$

16. $(9p^4)(-8p^2)$

$-72p^6$

17. $\frac{2^9}{2^3}$

2^6

18. $\frac{3^8}{3^4}$

3^4

19. $\frac{5^9}{5^2}$

5^7

20. $\frac{8^7}{8}$

8^6

21. $\frac{b^{12}}{b^5}$

b^7

22. $\frac{12n^5}{4n^2}$

$3n^3$

23. $\frac{14m^3}{7m^2}$

$2m$

24. $\frac{9r^8}{3r^4}$

$3r^4$

25. $\frac{24t^9}{6t^3}$

$4t^6$

26. $\frac{18y^6}{2y}$

$9y^5$

27. $\frac{a^4c^6}{a^2c}$

a^2c^5

28. $\frac{5^{10}}{5^2}$

5^8

Simplify.

29. $\frac{4^8 \cdot 5^3 \cdot 7^6}{4^6 \cdot 5^2 \cdot 7^5}$

$4^2 \cdot 5 \cdot 7$ or 560

30. $\frac{(-2)^9 \cdot (-3)^7 \cdot 4^3}{(-2)^5 \cdot (-3)^5 \cdot 4^1}$

$(-2)^4 \cdot (-3)^2 \cdot 4^2$ or $2,304$

31. $\frac{3^{10} \cdot (-6)^5}{3^7 \cdot (-6)^2}$

$3^3 \cdot (-6)^3$

or $-5,832$

32. $\frac{9^8 \cdot 10^{12}}{9^6 \cdot 10^6}$

$9^2 \cdot 10^6$ or $81,000,000$