

Lesson
1.3
Extra Practice

Simplify the expression. Write your answer as a power.

1. $\frac{3^7}{3^5}$

2. $\frac{6^8}{6^5}$

3. $\frac{8^9}{8^6}$

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

5. $\frac{7^6}{7^2}$

6. $\frac{15^{14}}{15^{10}}$

7. $\frac{9^{12}}{9^7}$

8. $\frac{11^{13}}{11^8}$

9. Your friend simplifies the quotient. Is your friend correct? Explain your reasoning.

$\frac{8^{18}}{8^6} = 8^{\frac{18}{6}}$ $= 8^3$

Simplify the expression. Write your answer as a power.

10. $\frac{4^8 \cdot 4^4}{4^2}$

11. $\frac{3^3 \cdot 3^6}{3^4}$

12. $\frac{2^{14}}{2^7 \cdot 2^4}$

13. $\frac{7^9}{7^2 \cdot 7^5}$

14. A personal computer developed in the 1980s had approximately 2^{18} bytes of memory. Your teacher's laptop has 16 gigabytes = 2^{34} bytes of memory. How many times more memory does your teacher's laptop have than the personal computer from the 1980s?

Simplify the expression. Write your answer as a power.

15. $\frac{3^6}{3^4} \cdot \frac{3^7}{3^5}$

16. $\frac{9^9}{9^3} \cdot \frac{9^6}{9^2}$

17. $\frac{5^{10}}{5^4} \cdot \frac{5^8}{5^3}$

18. $\frac{8^5}{8^2} \cdot \frac{8^4}{8^2}$

19. $\frac{6^5}{6^4} \cdot \frac{6^9}{6^2}$

20. $\frac{4^3 \cdot 4^5}{4^4} \cdot \frac{4^7}{4^2}$