

Name: _____



DIVIDING EXPONENTS WITH THE SAME BASE

The Quotient Property

$$a^b \div a^c = a^{b-c} \quad \text{or} \quad \frac{a^b}{a^c} = a^{b-c}$$

PART I: Use the quotient property to solve each of the following. The first problem has already been solved for you.

1. $9^7 \div 9^5 = \underline{9^2}$

7. $\frac{17^{30}}{17^6} = \underline{\hspace{2cm}}$

2. $11^{12} \div 11^5 = \underline{\hspace{2cm}}$

8. $15^{17} \div 15^7 = \underline{\hspace{2cm}}$

3. $\frac{5^7}{5^3} = \underline{\hspace{2cm}}$

9. $10^{28} \div 10^{16} = \underline{\hspace{2cm}}$

4. $2^{10} \div 2 = \underline{\hspace{2cm}}$

10. $\frac{10^4}{10^2} = \underline{\hspace{2cm}}$

5. $\frac{16^{21}}{16^{19}} = \underline{\hspace{2cm}}$

11. $3^{50} \div 3^{27} = \underline{\hspace{2cm}}$

6. $8^{24} \div 8^9 = \underline{\hspace{2cm}}$

12. $\frac{32^{40}}{32^{10}} = \underline{\hspace{2cm}}$

PART II: Use the quotient property to solve each of the following. The first problem has already been solved for you.

13. $x^9 \div x^4 = \underline{x^5}$

19. $\frac{p^{100}}{p^{64}} = \underline{\hspace{2cm}}$

14. $y^{16} \div y^6 = \underline{\hspace{2cm}}$

20. $x^{29} \div x^7 = \underline{\hspace{2cm}}$

15. $\frac{k^{27}}{k^9} = \underline{\hspace{2cm}}$

21. $y^{50} \div y^{25} = \underline{\hspace{2cm}}$

16. $y^{39} \div y^{36} = \underline{\hspace{2cm}}$

22. $\frac{w^{19}}{w^9} = \underline{\hspace{2cm}}$

17. $\frac{g^{50}}{g^{49}} = \underline{\hspace{2cm}}$

23. $x^{88} \div x^{36} = \underline{\hspace{2cm}}$

18. $m^{60} \div m^{40} = \underline{\hspace{2cm}}$

24. $\frac{c^{19}}{c^2} = \underline{\hspace{2cm}}$

ANSWER KEY

PART I:

1. $9^7 \div 9^5 = \underline{9^2}$

2. $11^{12} \div 11^5 = 11^7$

3. $\frac{5^7}{5^3} = 5^4$

4. $2^{10} \div 2 = 2^9$

5. $\frac{16^{21}}{16^{19}} = 16^2$

6. $8^{24} \div 8^9 = 8^{15}$

7. $\frac{17^{30}}{17^6} = 17^{24}$

8. $15^{17} \div 15^7 = 15^{10}$

9. $10^{28} \div 10^{16} = 10^{12}$

10. $\frac{10^4}{10^2} = 10^2$

11. $3^{50} \div 3^{27} = 3^{23}$

12. $\frac{32^{40}}{32^{10}} = 32^{30}$

PART II:

13. $x^9 \div x^4 = \underline{x^5}$

14. $y^{16} \div y^6 = y^{10}$

15. $\frac{k^{27}}{k^9} = k^{18}$

16. $y^{39} \div y^{36} = y^3$

17. $\frac{g^{50}}{g^{49}} = g^1$

18. $m^{60} \div m^{40} = m^{20}$

19. $\frac{p^{100}}{p^{64}} = p^{36}$

20. $x^{29} \div x^7 = x^{22}$

21. $y^{50} \div y^{25} = y^{25}$

22. $\frac{w^{19}}{w^9} = w^{10}$

23. $x^{88} \div x^{36} = x^{53}$

24. $\frac{c^{19}}{c^2} = c^{17}$