

IV. Dividing same base exponents - Subtract the exponents.

Example: $\frac{6^4}{6} = 6^4 \div 6^1 = 6^{4-1} = 6^3$

Another way to do the example: $\frac{6^4}{6} = \frac{\cancel{6} \cdot 6 \cdot 6 \cdot 6}{\cancel{6}} = 6^3$

Simplify the following expressions:

37. $\frac{10^6}{10^2} =$

38. $\frac{8^{10}}{8^6} =$

39. $\frac{5^2}{5^2} =$

40. $\frac{7^6}{7^{-2}} =$

41. $\frac{7^6}{7} =$

42. $\frac{(2^6)^2}{2^2} =$

43. $3^4 \div 3^3 =$

44. $\frac{x}{x^2} =$

45. $\frac{x^{20}}{x^{14}} =$

46. $\frac{x^3}{x^2} =$

47. $\frac{10^m}{10^n} =$

48. $\frac{(4^6)^{-2}}{4} =$

V. Raising fractions to powers - Apply the exponent to both numerator and denominator.

Example: $\left(\frac{4}{5}\right)^2 = \frac{4^2}{5^2} = \frac{16}{25}$

Simplify the following expressions.

49. $\left(\frac{3}{10}\right)^2 =$

50. $\left(\frac{1}{5}\right)^3 =$

51. $\left(\frac{5}{6}\right)^0 =$

52. $\left(\frac{7}{9}\right)^2 =$

53. $\left(\frac{3}{4}\right)^2 =$

54. $\left(\frac{3}{-5}\right)^2 =$

55. $\left(\frac{x^2}{9}\right)^2 =$

56. $\left(\frac{1}{x^3}\right)^2 =$

57. $\left(\frac{4x}{3}\right)^2 =$

58. $\left(\frac{3}{x}\right)^2 =$

59. $\left(\frac{xy}{8}\right)^2 =$

60. $\frac{7}{(-2)^3} =$

VI. More exponent practice

61. $6^5 \cdot 6 =$

62. $\frac{x^2y}{x^2} =$

63. $x(x^{-10}) =$

64. $3^{12} \div 3^3 =$

65. $(-8)^7 \cdot (-8) =$

66. $10^{-1} \cdot 10 =$

67. $\frac{4x^3}{12x} =$

68. $\frac{x^{-5}y}{x^2} =$

69. $\frac{15x^3}{5x^5} =$

70. $3x^5yz^2 \cdot 6xy^4 =$

71. $\frac{y^3}{y^{-2}} =$

72. $(-5xy)(-4x) =$

73. $11^{-2} \cdot 11 =$

74. $5^2 \cdot 2^2 =$

75. $2^3 + 2^2 =$