

Pg. 111

$$\begin{aligned} 51. \quad 6^{-3} \div 6^{-3} \\ = 6^{-3 - (-3)} \\ = 6^{-3 + 3} \\ = 6^0 \\ = 1 \end{aligned}$$

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$$52. \quad \frac{(2^2)^2}{(5^3)^{-1}}$$

$$\begin{aligned} &= \frac{2^4}{5^{-3}} \\ &= 2^4 \times 5^3 \\ &= 16 \times 125 \\ &= 2000 \end{aligned}$$

$$55. \frac{(7^{-3})^0}{(0.1^{-1})^{-2}}$$

$$= \frac{7^0}{(0.1)^2}$$

$$= \frac{1}{0.01}$$

$$= 100$$

$$56. 2^3 \times 2^{-2} \times 2^{-2}$$

$$= 2^{3+(-2)+(-2)}$$

$$= \frac{2^1}{2^1}$$

$$= 100$$

$$57. 3^4 \div 3^5 \times 3^1$$

$$= 3^{4-5+1}$$

$$= 3^{-1+1}$$

$$= 3^0 \quad \checkmark$$

$$= 1 \quad \checkmark$$

$$58. 3^0 + 3^3$$

$$= 1 + 27$$

$$= 28$$

$$\begin{aligned}
 62. \quad & 2^3 \times 2^{-1} + 5 \\
 & = 2^2 + 5 \\
 & = 4 + 5 \\
 & = 9
 \end{aligned}$$

$$\begin{aligned}
 65. \quad & \frac{1}{2^{-2}} + \frac{1}{3^{-1}} \\
 & = \frac{2^2}{1} + \frac{3^1}{1} \\
 & = 4 + 3 \\
 & = 7
 \end{aligned}$$

$$67. \quad \frac{-3^{-3}}{3^{-1}} = -3^{-3-(-1)} = -3^{-2}$$

$$1. \quad \frac{3^1}{-3^3} \quad 3^1 \div -3^3$$

$$= -3^{-2} = -\frac{1}{3^2} = -\frac{1}{9}$$

68.

$$\begin{aligned}
 & \left(\frac{1}{3} \right)^{-1} \\
 &= \frac{(1)^{-1}}{(3)^{-1}} \\
 &= \frac{1}{3} \\
 &= 3
 \end{aligned}$$

72. $\left(\frac{-2}{3} \right)^{-3}$

$$\begin{aligned}
 &= \frac{(-2)^{-3}}{3^{-3}} \\
 &= \frac{3^3}{(-2)^3} \quad \left(\frac{27}{-8} \right)
 \end{aligned}$$

76.

$$y^{-1} \times y^{-3}$$

$$= y^{-4}$$

$$= \frac{1}{y^4}$$

78. $m^6 \div m^{-2}$

$$= m^{6 - (-2)}$$

$$= m^8$$

80. $(m^4)^2$

$$= m^8$$

$$84. \frac{a^{-4} \times a^{-2}}{a^2}$$

$$= a^{-4+(-2)-2}$$

$$= a^{-6-2}$$

$$= a^{-8}$$

$$= \frac{1}{a^8}$$

$$88. n^5 \times n^{-6} \div n^1$$

$$= n^{5+(-6)-1}$$

$$= \frac{n^{-2}}{1}$$

$$= \frac{1}{n^2}$$

90 e) evaluate for $a=2, b=3$

$$e) b^{-2}$$

$$= 3^{-2}$$

$$= \frac{1}{3^2}$$

$$f) a^{-4}$$

$$= 2^{-4}$$

$$= \frac{1}{2^4}$$

$$= \frac{1}{16}$$

$$y'' = (b^2 - a^2)^{-2} \quad \begin{matrix} a=2 \\ b=3 \end{matrix}$$

$$= (3^2 - 2^2)^{-2}$$

$$= (9 - 4)^{-2}$$

$$= (5)^{-2}$$

$$= \frac{1}{5^2}$$

$$9ac \left(\frac{1}{3}\right)^2 \left(-\frac{1}{2}\right)^{-3}$$

$$= \left(\frac{1}{9}\right) \left(-\frac{1}{2^{-3}}\right)$$

$$= \frac{1}{9} \left(\frac{2^3}{1}\right) = \frac{1}{9} \left(\frac{8}{1}\right)$$

92 f.

$$\left(\frac{5}{3}\right)^3 \div \left(\frac{5}{3}\right)^5$$

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

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

$$= \frac{5^{-2}}{3^{-2}}$$

$$= \frac{3^2}{5^2} =$$

$$\frac{9}{25}$$

Finish

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Homework

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