

Ch. 7 Test Study Guide

$$1) \frac{20gr^{-2}t^5}{4r^4t^2} = \frac{5gt^2}{r^2t^3} = \boxed{\frac{5g}{r^2t^3}}$$

$$2) \frac{(4m^3n^{-2})(2m^4n)^{-3}}{4m^3n^{-2}2^{-3}m^{-12}n^{-3}} = \frac{4m^3}{2^3n^2m^{12}n^3} = \frac{4}{8m^9n^5} = \boxed{\frac{1}{2m^9n^5}}$$

$$3) \frac{(a^{-2}b^4c^5)^3}{(a^{-4}b^{-4}c^3)} = \frac{a^{-6}b^{12}c^{15}}{a^{-12}b^{-12}c^9} = \frac{a^{12}b^{12}c^{15}}{a^4c^9} = \boxed{a^8b^{24}c^6}$$

$$4) \left(\frac{1}{3}\right)^5 \left(\frac{1}{3}\right)^{-8} = (3)^3 = \frac{27}{1} = \boxed{27}$$

$\frac{1 \cdot 1}{3^5} = \frac{1}{243}$

$$5) (4a^{-4}b^{-9}c)^{-2} = 4^{-2}a^8b^{18}c^{-2} = \boxed{\frac{a^8b^{18}}{16c^2}}$$

$$6) \left(\frac{3f^4gh^4}{32f^3g^4h}\right)^0 = \boxed{1}$$

$$7) w^5x^0y^{-4}z^{-1} = \boxed{\frac{w^5}{y^4z}}$$

$$8) \frac{(2a^{-2}b^4c^2)^{-1}}{(-4a^{-2}b^{-5}c^7)} = \frac{-4a^{-7}b^{-5}c^{-7}}{2a^{-2}b^4c^2} = \frac{-2}{b^4b^5c^2c^7} = \boxed{\frac{-2}{b^9c^9}}$$

$$9) \left(-\frac{3}{4}c\right)^3 = \left(-\frac{3}{4}\right)^3 c^3 = \frac{(-3)^3}{4^3} = \boxed{\frac{-27c^3}{64}}$$

$$10) 7t^{11}u^3(-4t^{-9})^2u^{-5} = 7t^{11}u^3(16)t^{-18}u^{-5} = \frac{112t^{11}u^3}{t^{18}u^5} = \boxed{\frac{112}{t^7u^2}}$$

$$11) (0.75^{-7})(0.75^4) = 0.75^{-3} = \left(\frac{3}{4}\right)^{-3} = \left(\frac{4}{3}\right)^3 = \boxed{\frac{64}{27}}$$

$$12) - \left(\left(\frac{1}{3} \right)^5 \left(\frac{1}{3} \right)^{-3} \right)^{-2} \\ = - \left(\left(\frac{1}{3} \right)^2 \right)^{-2} = - \left(\frac{1}{3} \right)^{-4} = - \left(\frac{3}{1} \right)^4 = - (81) = \boxed{-81}$$

$$13) \frac{1.363 \times 10^{10}}{2.9 \times 10^6} = \underset{\uparrow}{47} \times 10^{10-6} = \boxed{4.7 \times 10^9}$$

$$14) \underset{\uparrow}{0.0084} \times 10^{-10-3} = \boxed{8.4 \times 10^{-13}}$$

$$15) (6.5 \times 10^7)(7.2 \times 10^{-2}) \\ \underset{\uparrow}{46.8} \times 10^{5+1} = \boxed{4.68 \times 10^6}$$

$$16) \underset{\uparrow}{4792} \times 10^{5-3} = \boxed{4.792 \times 10^8}$$

$$17) 2(4.5 \times 10^9) = \underset{\uparrow}{13} \times 10^{11} = (1.3 \times 10^{10}) 2 = \\ \boxed{2.6 \times 10^{10}} \quad (26,000,000,000) \\ \text{people}$$

$$18) \frac{1.86 \times 10^5}{2} = \underset{\uparrow}{93} \times 10^{5-1} = \boxed{9.3 \times 10^4}$$

$$19) y = 50 \cdot .1^x \quad \{-1, 0, 1, 2\} \\ = 50 \cdot .1^{-1} = 50 \cdot \frac{1}{.1} = 500 \\ = 50 \cdot .1^0 = 50 \cdot 1 = 50 \\ = 50 \cdot .1^1 = 50 \cdot .1 = 5 \\ = 50 \cdot .1^2 = 50 \cdot .01 = .5$$

$$\boxed{\{.5, 5, 50, 500\}}$$

$$20) y = \frac{1}{3} \cdot 9^x \quad \{-1, 0, 1, 2\} \\ = \frac{1}{3} \cdot 9^{-1} = \frac{1}{3} \cdot \frac{1}{9} = \frac{1}{27} \\ = \frac{1}{3} \cdot 9^0 = \frac{1}{3} \cdot 1 = \frac{1}{3} \\ = \frac{1}{3} \cdot 9^1 = \frac{1}{3} \cdot 9 = 3 \\ = \frac{1}{3} \cdot 9^2 = \frac{1}{3} \cdot 81 = 27$$

$$\boxed{\left\{ \frac{1}{27}, \frac{1}{3}, 3, 27 \right\}}$$

$$21) A = 1200 \left(1 + \frac{.0575}{4} \right)^{4t}$$

$$22) A = 1200 \left(1 + \frac{.0575}{4} \right)^{4(2)} \\ = 1200 \left(1 + \frac{.0575}{4} \right)^8$$

$$\boxed{A = \$1345.15}$$

$$23) A = 1200 \left(1 + \frac{.0575}{4} \right)^{4(7)} \\ = 1200 \left(1 + \frac{.0575}{4} \right)^{28}$$

$$\boxed{A = \$1789.54}$$

$$24) A = 1200 \left(1 + \frac{0.0575}{2}\right)^{2(1)}$$

$$= 1200 \left(1 + \frac{0.0575}{2}\right)^{14}$$

$$A = \$1784.51$$

$$29) y = 1,211,537 (1.01016)^{20}$$

$$y \approx 1,495,916 \text{ people}$$

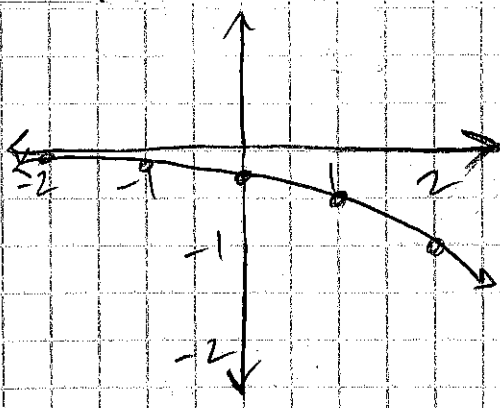
$$20) y = 18,995 (.82)^6$$

$$y = 5774.61$$

No, Leonardo shouldn't sell it for \$4500 because it's worth \$5775.

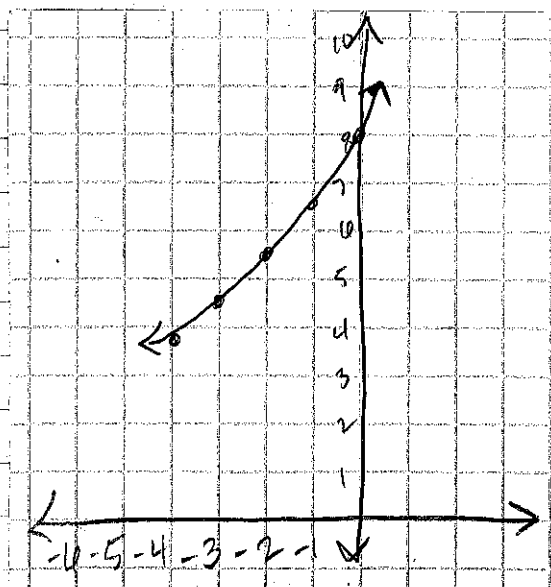
$$27) f(x) = -\frac{1}{4}(2)^x$$

x	y	b = -1/4
-2	-1/16	
-1	-1/8	
0	-1/4	
1	-1/2	
2	-1	



$$28) y = 8 \cdot 1.2^x$$

x	y	b = 8
-4	3.9	
-3	4.6	
-2	5.5	
-1	6.6	
0	8	



29.

1, 3, 9, ...
 $\times 3$ $\times 3$

$y = 1(3)^{x-1}$ term #
 1st term ← constant ratio

$$y = 1(3)^{8-1}$$

$$y = 2187$$

30.

04, 16, 4, ...
 $\sqrt{1/4}$ $\sqrt{1/4}$

$$y = 04 \left(\frac{1}{4}\right)^{x-1}$$

$$y = 04 \left(\frac{1}{4}\right)^{6-1}$$

$$y = .0025$$