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Contemporary Business Mathematics with Canadian Applications, 9e (Hummelbrunner) Chapter 2 Review of Basic Algebra

1) Simplify: 7*m* - 2*m* - 3*m* Answer: 2m Diff: 1 Type: SA Page Ref: 42-43 Topic: 2.1 Simplification of Algebraic Expressions 2) Simplify: 4x - 3y - 4x - 2yAnswer: -5y Diff: 1 Type: SA Page Ref: 42-43 Topic: 2.1 Simplification of Algebraic Expressions 3) Simplify: 4x - 6y - 4x - 2yAnswer: -8y Diff: 1 Type: SA Page Ref: 42-43 Topic: 2.1 Simplification of Algebraic Expressions 4) Simplify: x + 0.16xAnswer: 1.16xDiff: 1 Type: SA Page Ref: 42-43 Topic: 2.1 Simplification of Algebraic Expressions 5) Simplify: x - 0.32xAnswer: 0.68xDiff: 1 Type: SA Page Ref: 42-43 **Topic: 2.1 Simplification of Algebraic Expressions** 6) Simplify: x - 0.62xAnswer: 0.38xType: SA Diff: 1 Page Ref: 42-43 Topic: 2.1 Simplification of Algebraic Expressions 7) Simplify: 3ax - 4x + 1 - 7 + 3x - 4axAnswer: -ax - x - 6Diff: 1 Type: SA Page Ref: 42-43 **Topic: 2.1 Simplification of Algebraic Expressions** 8) Simplify: -(4 - 6a) - (-4 + 3a)Answer: -4 + 6a + 4 - 3a = 3aType: SA Page Ref: 42-44 Diff: 2 **Topic: 2.1 Simplification of Algebraic Expressions** 9) Simplify: -(4 - 6a) - (-8 + 6a)Answer: -4 + 6a + 8 - 6a = 4Diff: 2 Type: SA Page Ref: 42-44 Topic: 2.1 Simplification of Algebraic Expressions

10) Simplify: -(3m - 6m - 5) - (4 - 7m - 2m)Answer: -3m + 6m + 5 - 4 + 7m + 2m = 12m + 1Diff: 2 Type: SA Page Ref: 42-44 Topic: 2.1 Simplification of Algebraic Expressions

11) Simplify: (7a - 7b) - (-3a + 9b) - 11bAnswer: 7a - 7b + 3a - 9b - 11b = 10a - 27bDiff: 2 Type: SA Page Ref: 42-44 Topic: 2.1 Simplification of Algebraic Expressions

12) Simplify: (8a - 7b) - (-3a + 7b) - 11bAnswer: 8a - 7b + 3a - 7b - 11b = 11a - 25bDiff: 2 Type: SA Page Ref: 42-44 Topic: 2.1 Simplification of Algebraic Expressions

13) Simplify: -7(9a)
Answer: -63a
Diff: 1 Type: SA Page Ref: 43
Topic: 2.1 Simplification of Algebraic Expressions

14) Simplify: -9a(-5b)
Answer: 45ab
Diff: 1 Type: SA Page Ref: 43
Topic: 2.1 Simplification of Algebraic Expressions

15) Simplify: -5a(-5b)
Answer: 25ab
Diff: 1 Type: SA Page Ref: 43
Topic: 2.1 Simplification of Algebraic Expressions

16) Simplify: -6m(-3m)
Answer: 18m²
Diff: 1 Type: SA Page Ref: 43
Topic: 2.1 Simplification of Algebraic Expressions

17) Simplify: 3a(-3b)(-4c)(-1)
Answer: -36abc
Diff: 1 Type: SA Page Ref: 43
Topic: 2.1 Simplification of Algebraic Expressions

18) Simplify: -2a(-3b)(-4c)(-5)Answer: 120abc Diff: 1 Type: SA Page Ref: 43 Topic: 2.1 Simplification of Algebraic Expressions 19) Simplify: 5(4x - 2)Answer: 20x - 10Diff: 2 Type: SA Page Ref: 43-44 **Topic: 2.1 Simplification of Algebraic Expressions** 20) Simplify: -3x(4 - 2b - b)Answer: -12x + 6bx + 3bx = -12x + 9bxPage Ref: 42-44 Diff: 2 Type: SA **Topic: 2.1 Simplification of Algebraic Expressions** 21) Simplify: -3x(4 - 2b - 2b)Answer: -12x + 6bx + 6bx = -12x + 12bxType: SA Page Ref: 42-44 Diff: 2 **Topic: 2.1 Simplification of Algebraic Expressions** 22) Simplify: -5(8a - b) - 2(-6a + 9b)Answer: -40a + 5b + 12a - 18b = -28a - 13bType: SA Page Ref: 42-44 Diff: 2 **Topic: 2.1 Simplification of Algebraic Expressions** 23) Simplify: 8(9y - 4) - 2(y - 1) - (1 - 3y)Answer: 72y - 32 - 2y + 2 - 1 + 3y = 73y - 31Diff: 2 Type: SA Page Ref: 42-44 **Topic: 2.1 Simplification of Algebraic Expressions** 24) Simplify: 4(9y - 4) - 2(y - 1) - (1 - 3y)Answer: 36y - 16 - 2y + 2 - 1 + 3y = 37y - 15Type: SA Page Ref: 42-44 Diff: 2 Topic: 2.1 Simplification of Algebraic Expressions 25) Simplify: (5m - 2n)(m - 12n)Answer: $5m^2 - 60mn - 2mn + 24n^2 = 5m^2 - 62mn + 24n^2$ Type: SA Page Ref: 42-44 Diff: 2 **Topic: 2.1 Simplification of Algebraic Expressions** 26) Simplify: (3a - 1)(a - 3a + 1)Answer: $3a^2 - 9a^2 + 3a - a + 3a - 1 = -6a^2 + 5a - 1$ Diff: 2 Type: SA Page Ref: 42-44 **Topic: 2.1 Simplification of Algebraic Expressions**

27) Simplify: (4a - 1)(a - 3a + 1)Answer: $4a^2 - 12a^2 + 4a - a + 3a - 1 = -8a^2 + 6a - 1$ Diff: 2 Type: SA Page Ref: pgs 42-44 **Topic: 2.1 Simplification of Algebraic Expressions** 28) Simplify: 2(*a* - 1)(7*a* - 3) - 3(6*a* - 2)(2*a* + 1) Answer: $2(7a^2 - 3a - 7a + 3) - 3(12a^2 + 6a - 4a - 2)$ $= 14a^2 - 6a - 14a + 6 - 36a^2 - 18a + 12a + 6$ $= -22a^2 - 26a + 12$ Diff: 2 Type: SA Page Ref: 42-44 Topic: 2.1 Simplification of Algebraic Expressions 29) Simplify: $50xy \div (-5x)$ Answer: -10y Diff: 1 Type: SA Page Ref: 45 **Topic: 2.1 Simplification of Algebraic Expressions** 30) Simplify: $60xy \div (-5xy)$ Answer: -12 Diff: 1 Type: SA Page Ref: 45 Topic: 2.1 Simplification of Algebraic Expressions 31) Simplify: $(-45a^{3b}) \div 15a^{2}$ Answer: -3ab Diff: 1 Type: SA Page Ref: 45 **Topic: 2.1 Simplification of Algebraic Expressions** 32) Simplify: $(-64ab) \div (8ab)$ Answer: -8 Diff: 1 Type: SA Page Ref: 45 Topic: 2.1 Simplification of Algebraic Expressions 33) Simplify: $(-8ab) \div (8a)$ Answer: -b Diff: 1 Type: SA Page Ref: 45 Topic: 2.1 Simplification of Algebraic Expressions 34) Simplify: $(21x - 36) \div (-3)$ Answer: -7x + 12Diff: 2 Type: SA Page Ref: 45 **Topic: 2.1 Simplification of Algebraic Expressions** 35) Simplify: $(-a^3 - 11a^2 - 3a) \div (-a)$ Answer: $a^2 + 11a + 3$ Type: SA Page Ref: 45 Diff: 2 Topic: 2.1 Simplification of Algebraic Expressions

36) Simplify: $(-a^3 - 10a^2 - 3a) \div (a)$ Answer: $-a^2 - 10a - 3$ Diff: 2 Type: SA Page Ref: 45 Topic: 2.1 Simplification of Algebraic Expressions

37) Evaluate: $4x^2 - 10xy - 8y^2$ for x = -3, y = 5Answer: $4x^2 - 10xy - 8y^2$ $= 4(-3)^2 - 10(-3)(5) - 8(5)^2$ = 4(9) + 150 - 8(25)= 36 + 150 - 200= -14Diff: 2 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions

38) Evaluate y: $y = \frac{1}{2}(3x^2 - x - 1) - \frac{1}{4}(5 - 2x - x^2)$ for x = -3Answer: $\frac{1}{2}(3x^2 - x - 1) - \frac{1}{4}(5 - 2x - x^2)$ $= \frac{1}{2}[3(-3)^2 - (-3) - 1] - \frac{1}{4}[5 - 2(-3) - (-3)^2]$ $= \frac{1}{2}(27 + 3 - 1) - \frac{1}{4}(5 + 6 - 9)$ $= \frac{1}{2}(29) - \frac{1}{4}(2)$ = 14.5 - 0.5 = 14.0Diff: 2 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions

39) Evaluate R: $R = \frac{I}{PT}$ for I = 83, P = 845, T = $\frac{216}{360}$ Answer: $\frac{I}{PT} = \frac{83}{845 * \frac{216}{260}} = \frac{83}{845 * 6} = \frac{83}{507} = .163708$

Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions

40) Evaluate r:
$$r = \frac{I}{PT}$$
, where I = 116, P = 1760, $t = \frac{150}{365}$
Answer: $r = \frac{116}{1760 * \frac{160}{365}} = \frac{116}{1760 * .4109589} = \frac{116}{723.28767} = .1603788$

Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 41) Evaluate r: $r = \frac{I}{PT}$, where I = 200, P = 800, $t = \frac{150}{365}$ Answer: $r = \frac{200}{800 * \frac{160}{365}} = \frac{200}{800 * .4109589} = \frac{200}{32876712} = .6083333$ Page Ref: 45-46 Diff: 3 Type: SA Topic: 2.1 Simplification of Algebraic Expressions 42) Evaluate K: $K = \frac{2NC}{P(n+1)}$ for N = 32, C = 20, P = 1859, n = 26 Answer: $\frac{2NC}{P(n+1)} = \frac{2 * 32 * 20}{1859(26+1)} = \frac{1280}{1859(27)} = \frac{1280}{50193} = .0255$ Type: SA Page Ref: 45-46 Diff: 3 Topic: 2.1 Simplification of Algebraic Expressions 43) Evaluate P: P = A(1 - RT) for A = 1400, R = 0.185, T = $\frac{252}{360}$ Answer: A(1 - RT) = $1400 \left[1 - 0.185 * \frac{252}{360} \right] = 1400 \left[1 - .185 * 7 \right]$ = 1400[1 - .1295] = 1400[.8705] = 1218.7Diff: 2 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 44) Evaluate P: P = A(1 - RT) for A = 700, R = 0.185, T = $\frac{180}{360}$ Answer: A(1 - RT) = $700 \left[1 - 0.185 * \frac{180}{360} \right] = 1400 \left[1 - .185 * 7 \right]$ =700[1 - .0925] = 700[.9075] = 635.25Diff: 2 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 45) Evaluate *p*: $p = s \left[1 - r * \frac{t}{360} \right]$, where s = 3120, r = 0.123, t = 295Answer: $p = 3120 \left[1 - .123 \left(\frac{295}{360} \right) \right] = 3120 [1 - .123 * .8194444]$ = 3120[1 - .1007917] = 3120[.8992083] = 2805.53Type: SA Page Ref: 45-46 Diff: 2 Topic: 2.1 Simplification of Algebraic Expressions 46) Evaluate P: $P = \frac{A}{1 + RT}$ for A = 752, R = 0.145, T = $\frac{225}{360}$ Answer: $\frac{A}{1 + RT} = \frac{752}{1 + .145 * .625} = \frac{752}{1 + .090625} = \frac{752}{1.090625} = 689.5129$ Diff: 3 Type: SA Page Ref: 45-46 **Topic: 2.1 Simplification of Algebraic Expressions**

47) Evaluate s: $s = \frac{p}{\left(1 + r * \frac{t}{360}\right)}$, where p = 3411.50, r = 0.0925, t = 75Answer: $s = \frac{3411.50}{1 + .0925 * .0208333} = \frac{3411.50}{1 + .00192708} = \frac{3411.50}{1.0192708} = 3347.001$ Page Ref: 45-46 Diff: 3 Type: SA Topic: 2.1 Simplification of Algebraic Expressions 48) Evaluate the value of FV, if $FV = PMT\left[\frac{(1+i)^n - 1}{i}\right]$, PMT = \$750, i = 0.025, and n = 10. Answer: $FV = 750 \left[\frac{(1 + 0.025)^{10} - 1}{0.025} \right] = \8402.54 Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 49) Evaluate: 16 Answer: 1 Diff: 1 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents 50) Evaluate: (-1)14 Answer: 1 Diff: 1 Type: SA Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 51) Evaluate: (-1)13 Answer: -1 Type: SA Page Ref: 49-56 Diff: 1 **Topic: 2.2 Integral Exponents** 52) Evaluate: $\left|\frac{-1}{8}\right|^5$ Answer: $-\frac{1}{32768}$ Diff: 1 Type: SA Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 53) Evaluate: (-0.1)⁷ Answer: -0.0000001 Diff: 1 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

54) Evaluate: (-0.1)⁴ Answer: 0.0001 Diff: 1 Type: SA Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 55) Evaluate: m^0 Answer: 1 Diff: 1 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents 56) Evaluate: (-5)-2 Answer: $\frac{1}{25}$ or .04 Type: SA Page Ref: pgs 49-56 Diff: 2 **Topic: 2.2 Integral Exponents** 57) Evaluate: (-5)-3 Answer: $-\frac{1}{125}$ or -.008 Type: SA Page Ref: pgs 49-56 Diff: 2 **Topic: 2.2 Integral Exponents** 58) Evaluate: $\left[\frac{2}{3}\right]^{-3}$ Answer: $\frac{27}{8}$ or 3.375 Diff: 2 Type: SA Page Ref: pgs 49-56 **Topic: 2.2 Integral Exponents** 59) Evaluate: (1.05)⁰ Answer: 1 Type: SA Page Ref: pgs 49-56 Diff: 1 Topic: 2.2 Integral Exponents 60) Evaluate: -(288888)0 Answer: -1 Diff: 1 Type: SA Page Ref: pgs 49-56 **Topic: 2.2 Integral Exponents** 61) Evaluate: $(3)^2(3)^4$ Answer: $(3)^2(3)^4 = 36 = 729$ Type: SA Page Ref: pgs 49-56 Diff: 2 Topic: 2.2 Integral Exponents

62) Simplify: $(-4)^4 * (-4)$ Answer: $(-4)^{4+1} = (-4)^5 = -1024$ Diff: 2 Type: SA Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents

63) Simplify: $(-4)^3 * (-4)$ Answer: $(-4)^{3+1} = (-4)^4 = 256$ Diff: 2 Type: SA Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents

64) Simplify: $(-3)^7 \div (-3)^4$ Answer: $(-3)^{7-4} = (-3)^3 = -27$ Diff: 2 Type: SA Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents

65) Simplify: $(m^4)^5$ Answer: $(m^4)^5 = m^{4\times 5} = m^{20}$ Diff: 1 Type: SA Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents

66) Simplify: $(m^5)^5$ Answer: $(m^5)^5 = m^{5\times 5} = m^{25}$ Diff: 1 Type: SA Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents

67) Simplify: $[(-4)^4]^3$ Answer: $(-4)^{4\times3} = (-4)^{12} = 16777216$ Diff: 2 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

68) Simplify: $m^{13} \div m^6$ Answer: $m^{13-6} = m^7$ Diff: 1 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

69) Simplify: $(-1)^4(-1)^2(-1)^5$ Answer: $(-1)^{4+2+5} = (-1)^{11} = -1$ Diff: 1 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents 70) Simplify: $\frac{(x^3)(x^5)}{x^4}$ Answer: $x^{3+5-4} = x^{4}$ Type: SA Diff: 2 Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 71) Simplify: $\frac{(x^{16})(x^4)}{x^2}$ Answer: $x^{16+4-2} = x^{18}$ Diff: 2 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents 72) Simplify: $\left[\frac{1}{9}\right]^8 \div \left[\frac{1}{9}\right]^3$ Answer: $[1/9]^{8-3} = [1/9]^5 = 1/59049$ Diff: 2 Type: SA Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 73) Simplify: $\left[\frac{-3}{5}\right]^9 \div \left[\frac{-3}{5}\right]^4$ Answer: $[-3/5]^{9-4} = [-3/5]^5 = -243/3125 = -.07776$ Diff: 2 Type: SA Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 74) Simplify: 1.005240 ÷ 1.005160 Answer: 1.005240-160 = 1.00580 = 1.4903386Diff: 2 Type: SA Page Ref: 49-56 **Topic: 2.2 Integral Exponents** 75) Simplify: $\left[\left(\frac{-3}{8}\right)^6\right]^3$ Answer: $[-3/8]^{6\times3} = [-3/8]^{18} = (-3)^{18}/8^{18}$ or .0000000215062 Type: SA Page Ref: 49-56 Diff: 2 Topic: 2.2 Integral Exponents 76) Simplify: $(1 - r)^2(1 - r)^3(1 - r)$ Answer: $(1 - r)^6$ Diff: 2 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents 77) Simplify: $(1 - r)^3(1 - r)^4(1 - r)$ Answer: $(1 - r)^8$ Diff: 2 Type: SA Page Ref: pgs 49-56 **Topic: 2.2 Integral Exponents**

78) Simplify: $[(1 - r)^{51}]^2$ Answer: $(1 - r)^{51 \times 2} = (1 - r)^{102}$ Diff: 2 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

79) Simplify: $(2xy)^5$ Answer: 25x5y5 = 32x5y5Diff: 2 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

80) Simplify: $\frac{\left[\frac{a^{5}b^{6}}{x}\right]^{3}}{x^{1\times 3}} = \frac{a^{15}b^{18}}{x^{3}}$

Diff: 2 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

81) Simplify: $\left[\frac{a^{6}b^{8}}{x}\right]^{2}$ Answer: $\frac{a^{6\times 2}b^{8\times 2}}{x^{1\times 2}} = \frac{a^{12}b^{16}}{x^{2}}$ Diff: 2 Type: SA Page Ref: 49-56

Topic: 2.2 Integral Exponents

82) Simplify: $57 \div 5^{-3}$ Answer: $57 \cdot (-3) = 510$ Diff: 3 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

83) Simplify: $\left[\frac{1+i}{i}\right]^n$ Answer: $\frac{(1+i)^n}{i^n}$

Diff: 3 Type: SA Page Ref: 49-56 Topic: 2.2 Integral Exponents

84) Compute: $\sqrt{205.9225}$ Answer: $\sqrt{205.9225} = 14.35$ Diff: 1 Type: SA Page Ref: pgs 56-59 Topic: 2.3 Fractional Exponents 85) Compute: ¹²√1.126825 Answer: 1.01 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 86) Compute: ∛1.092727 Answer: 1.03 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 87) Compute: ¹/. 000488281 Answer: .5 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 88) Compute: $\sqrt[14]{1.159}$ Answer: 1.010595566 Type: SA Diff: 2 Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 89) Compute: **1.418519112** Answer: 1.06 Diff: 2 Type: SA Page Ref: 56-59 Topic: 2.3 Fractional Exponents 90) Compute: 19562/5 Answer: 20.727529 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 91) Compute: 32.5^{3/4} Answer: 13.611705 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 92) Compute: 323/4 Answer: 13.45434264 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 93) Compute: $\sqrt[3]{4.5689}$ Answer: 1.2423925 Diff: 2 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents**

94) Compute: 1.28-5/14 Answer: .9156104 Diff: 3 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 95) Compute: $\frac{1 - 1.15 - 41}{0.05}$ Answer: $\frac{1 - .0032463}{.05} = \frac{.9967537}{.05} = 19.935074$ Diff: 3 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 96) Compute the value of $\frac{1 - 1.025 - 25}{0.0295}$ Answer: $\frac{1 - .5393906}{.0295} = \frac{.4606094}{.0295} = 15.61388$ Diff: 3 Type: SA Page Ref: 56-59 **Topic: 2.3 Fractional Exponents** 97) Compute the value of $\frac{1 - 1.02 - 10}{0.02}$ Answer: $\frac{1 - .8203482999}{.02} = \frac{.1796517001}{.02} = 8.982585006$ Type: SA Diff: 3 Page Ref: 56-59 Topic: 2.3 Fractional Exponents 98) Evaluate: $50.00 \left(\frac{(1 + .02)^{40} - 1}{0.02} \right)$ Answer: $50.00 \left[\frac{(1+.02)^{40} - 1}{0.02} \right]$

$$= 50\left[\frac{0.02}{0.02}\right]$$

= $50\left[\frac{2.208039664-1}{0.02}\right]$
= $50\left[\frac{1.208039664}{0.02}\right]$
= $50(60.40198318)$
= 3020.10
Diff: 2 Type: SA Page Ref:

Diff: 2 Type: SA Page Ref: 56-59 Topic: 2.3 Fractional Exponents

99) Express in logarithmic form: 3⁹ = 19683
Answer: 9 = log3 19683
Diff: 2 Type: SA Page Ref: 61-66
Topic: 2.4 Logarithms-Basic Aspects

100) Express in logarithmic form: 56 = 19683Answer: $6 = \log 5 \ 15625$ Diff: 2 Type: SA Page Ref: 61-66Topic: 2.4 Logarithms-Basic Aspects

101) Express in logarithmic form: $10^{-4} = 0.0001$ Answer: $log_{10} .0001 = -4$ Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

102) Express in logarithmic form: $e^{-3x} = 12$ Answer: $e^{-3x} = 12$, $-3x = \log_e 12$, or $\ln 12 = -3x$ Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

103) Express in exponential form: $\log_3 \frac{1}{81} = -4$

Answer: $\log_3 \frac{1}{81} = -4, \ 3-4 = \frac{1}{81}$

Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

104) Express in exponential form: $\log_{10} \frac{1}{100} = -2$ Answer: $\log_{10} \frac{1}{100} = -2$, $10^{-2} = \frac{1}{100}$ Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

105) Express in exponential form: $\ln e^5 = 5$ Answer: $e^5 = e^5$ Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

106) Evaluate: ln 300 Answer: ln 300 = 5.703782 Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

107) Evaluate: ln 60 Answer: ln 60 = 4.094344562 Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects 108) Evaluate: $\ln[400(1.177)]$ Answer: $\ln[400(1.177)] = \ln 400 + \ln 1.177$ $= \ln 400 + 7(\ln 1.17)$ = 5.9914645 + 7(.1570038)= 5.9914645 + 1.0990262 = 7.090491Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects

109) $\ln\left(\frac{1 - (1 + 0.0625)^{-12}}{0.0625}\right)$ Answer: $\ln \left(\frac{1 - (1 + 0.0625)^{-12}}{0.0625} \right)$ $= \ln \left(\frac{1 - 0.0625 - 12}{0.0625} \right)$ $= \ln \left(\frac{1 - 0.483117462}{0.0625} \right)$ 0.516882538 $= \ln$ $= \ln 8.270120604$ = 2.112649092Diff: 2 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects 110) Solve: 8x = 40Answer: $x = \frac{40}{8} = 5$ Diff: 3 Type: SA Page Ref: pgs 68-73 **Topic: 2.1 Simplification of Algebraic Expressions** 111) Solve: 2x = 40

Answer: $x = \frac{40}{2} = 20$ Diff: 3 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations 112) Solve: -5x = 35

Answer: $x = \frac{35}{-5} = -7$ Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations 113) Solve: $-\frac{2}{3}x = 48$ Answer: $-\frac{2}{3}x = 48$, x = -72Diff: 2 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations 114) Solve: 0.04x = 37

Answer: $x = \frac{37}{.04} = 925$

Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

115) Solve: $\frac{x}{4} = 0.24$

Answer: x = 0.24(4) = 0.96Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

116) Solve: $\frac{x}{8} = 0.3$

Answer: x = 0.3(8) = 2.4Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

117) Solve: $-\frac{1}{8}x = 15$

Answer: x = 15 * -8, x = -120Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

118) Solve: $-\frac{4}{3}x = -49$ Answer: $x = -49 * \frac{-3}{4} = \frac{147}{4} = 36.75$ Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations 119) Solve: -3x = 9 - 6xAnswer: 3x = 9 - 6x

Answer: 3x = 9, x = 3Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations 120) Solve: 3x = 9 + 12xAnswer: -9x = 9, x = -1Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

121) Solve: 2x + 17 = 7x - 15Answer: 17 + 15 = 7x - 2x, 32 = 5x, 6.4 = xDiff: 1 Type: SA Page Ref: 68-73Topic: 2.5 Solving Basic Equations

122) Solve: 2x + 17 = 8x - 3Answer: 17 + 3 = 8x - 2x, 20 = 6x, 3.3333 = xDiff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

123) Solve: x - 0.23x = 2105Answer: $.77x = 2105, x = \frac{2105}{.77} = 2733.766$

Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

124) Solve: x + 0.307x = 640.20Answer: 1.307x = 640.20, $x = \frac{640.20}{1.307} = 489.824$

Diff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

125) Solve: 51 - 14x = -34 - xAnswer: 51 + 34 = -x + 14x, 85 = 13x, 6.538462 = xLS: 51 - 14(6.538462) = 51 - 91.53846 = -40.53846RS: -34 - 6.53846 = -40.53846Diff: 1 Type: SA Page Ref: 68-73Topic: 2.5 Solving Basic Equations

126) Solve: 4x - 8 - 19x = 210 + 7x - 4Answer: 4x - 8 - 19x = 210 + 7x - 4-15x - 8 = 206 + 7x-8 - 206 = 7x + 15x-214 = 22x-9.7272727 = xLS: = 4(-9.7272727) - 8 - 19(-9.7272727) = -38.909091 - 8 + 184.81818 = 137.90909RS:= 210 + 7(-9.7272727) - 4= 206 - 68.090909= 137.90909Diff: 1 Type: SA Page Ref: 68-73 **Topic: 2.5 Solving Basic Equations** 127) Solve: 10(3 - x) + 2(x - 2) = 6(2x - 2)Answer: 10(3 - x) + 2(x - 2) = 6(2x - 2)30 - 10x + 2x - 4 = 12x - 12-10x + 2x - 12x = -12 - 30 + 4-20x = -38x = 1.9Diff: 2 Type: SA Page Ref: 68-73 Topic: 2.6 Equation Solving Involving Algebraic Simplification 128) Solve: 4(2x - 5) + 3 = 3(x - 4)Answer: 4(2x - 5) + 3 = 3(x - 4)8x - 20 + 3 = 3x - 128x - 3x = -12 + 20 - 35x = 5*x* = 1 Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 129) Solve: $x - \frac{x}{2} = \frac{x}{4} + 1$ Answer: $x - \frac{x}{2} = \frac{x}{4} + 1$ $(4)x - (4)\frac{x}{2} = (4)\frac{x}{4} + (4)1$ 4x - 2x = x + 44x - 2x - x = 4x = 4Page Ref: 73-76 Diff: 2 Type: SA Topic: 2.6 Equation Solving Involving Algebraic Simplification 130) Solve: $\frac{3}{4} - \frac{x}{8} - \frac{x+2}{6} = 1$ Answer: $\frac{3}{4} - \frac{x}{8} - \frac{x+2}{6} = 1$ $(24)\frac{3}{4} - (24)\frac{x}{8} - (24)\frac{x+2}{6} = (24)1$ (6)3 - 3x - (4)(x + 2) = 2418 - 3x - 4x - 8 = 24-7x = 14x = -2Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 131) Solve: 5(2x - 4) - 3(1 - 3x) = -64Answer: 5(2x - 4) - 3(1 - 3x) = -6410x - 20 - 3 + 9x = -6419x = -41x = 2.1578947LS: 5[2(-2.1578947) - 4] - 3[1 - 3(-2.1578947)] = -645[-4.3157895 - 4] - 3[1 - (-6.4736842)] = -645[-8.3157895] - 3[7.4736842] = -64 -41.578948 - 22.421053 = -64-64 = -64RS: = -64Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 132) Solve: 17 - 4(2x - 7) = 15x - 3(2x - 3)Answer: 17 - 4(2x - 7) = 15x - 3(2x - 3)17 - 8x + 28 = 15x - 6x + 945 - 8x = 9x + 936 = 17x2.117647 = xLS:17 - 4[2(2.117647) - 7] 17 - 4(4.2353941 - 7) 17 - 4(-2.7647059) 17 + 11.05882428.058824 15(2.117647) - 3[2(2.117647) - 3] RS: 31.764706 - 3[4.2352941 - 3] 31.764706 - 3[1.2352941] 31.764706 - 3.7058823 = 28.058824 Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 133) Solve: $x + \frac{5}{9}x = 126$ Answer: $x + \frac{5}{9}x = 126, \frac{14}{9}x = 126, x = 126 \times \frac{9}{14}, x = 81$ Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 134) Solve: $\frac{52}{3} - \frac{2}{5}x = \frac{11}{6}x - \frac{1}{30}$ Answer: $\frac{52}{3} - \frac{2}{5}x = \frac{11}{6}x - \frac{1}{30}, \frac{52}{3} + \frac{1}{30} = \frac{11}{6}x + \frac{2}{5}x$ 520 + 1 = 55x + 12x, 521 = 67x, 7.7761194 = xDiff: 2 Type: SA Page Ref: 73-76 **Topic: 2.5 Solving Basic Equations** 135) Solve: $2 - \frac{1}{2}x = \frac{2}{3}x + \frac{25}{9}$ Answer: $2 - \frac{1}{2}x = \frac{2}{3}x + \frac{25}{9}$ 36 - 9x = 12x + 50-14 = 21x

 $-\frac{2}{3} = x$ Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification

136) Solve: $\frac{14}{5}(4-3x) + \frac{23}{40} = \frac{7}{10}x - \frac{3}{8}(2x-3)$ Answer: $\frac{14}{5}(4-3x) + \frac{23}{40} = \frac{7}{10}x - \frac{3}{8}(2x-3)$ 112(4 - 3x) + 23 = 28x - 15(2x - 3) 448 - 336x + 23 = 28x - 30x + 45 471 - 336x = -2x + 45 426 = 334x 1.2754491 = x Diff: 3 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 137) Solve: $\frac{4}{3}(5x-2) - \frac{3}{5}(16x-3) = \frac{17}{60} + 3x$ Answer: $\frac{4}{3}(5x-2) - \frac{3}{5}(16x-3) = \frac{17}{60} + 3x$ 80(5x-2) - 36(16x-3) = 17 + 180x 400x - 160 - 576x + 108 = 17 + 180x -176x - 52 = 17 + 180x -69 = 356x -.1938202 = xDiff: 3 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification

138) Solve: I = Prt for r Answer: I = Prt, r = $\frac{I}{Pt}$

Diff: 1 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification

139) Solve: I = Prt for t
Answer: I = Prt, t =
$$\frac{I}{Pr}$$

Diff: 1 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification

140) Solve:
$$\frac{(R+r)}{r} = \frac{V}{v}$$
 for V
Answer: $\frac{(R+r)}{r} = \frac{V}{v}$
 $v(R+r) = Vr$
 $V = \frac{v(R+r)}{r}$

Diff: 2 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification

141) Solve: $Q = \frac{p-q}{4}$ for pAnswer: $Q = \frac{p-q}{4}$, 4Q = p - q, 4Q + q = p

Diff: 2 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification 142) Solve: $P = S(1 + i)^{-n}$ for *i* Answer: $P = S(1 + i)^{-n}$, $\frac{P}{S} = (1 + i)^{-n}$, $\left[\frac{P}{S}\right]^{-1/n} = 1 + i$, $\left[\frac{S}{P}\right]^{1/n} = 1 + i$, $i = \left[\frac{S}{P}\right]^{1/n} - 1$ Diff: 3 Type: SA Page Ref: 76-77

Topic: 2.6 Equation Solving Involving Algebraic Simplification

143) Solve:
$$S = P(1 + rt)$$
 for *t*
Answer: $S = P(1 + rt)$, $S=P+Prt$, $S-P = Prt$
 $t = \frac{S-P}{Pr}$

Diff: 2 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification

144) Solve: $D = \frac{1}{E+F}$ for F Answer: $D = \frac{1}{E+F}, \frac{1}{D} = E + F, F = \frac{1}{D} - E$

Diff: 3 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification

145) Solve:
$$\frac{a+b}{b} = \frac{c}{d}$$
 for b
Answer: $\frac{a+b}{b} = \frac{c}{d}$
 $d(a+b) = bc$
 $ad + bd = bc$
 $ad = bc - bd$
 $ad = b(c - d)$
 $b = \frac{ad}{(c-d)}$

Diff: 2 Type: SA Page Ref: 76-77 Topic: 2.6 Equation Solving Involving Algebraic Simplification 146) Conor had to pay income taxes of \$3 440.00 plus 22% of the amount by which his taxable income exceeded \$36 000.00. If his tax bill was \$3 684.00, calculate his taxable income. Answer: Let the taxable income (in dollars) be x.

Then $x - 36\ 000$ is the amount that his income is greater than \$36\ 000.

 $3440 + 0.22(x - 36\ 000) = 3684$ 3440 + 0.22x - 7920 = 3684 0.22x = 8164 $x = $37\ 109.09$ Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems

147) Taylor invests part of her \$2 000 savings into a savings account at 6% and part into a GIC at 8% simple interest. If she gets \$150 in interest from the two investments, calculate how much she invested at each rate.

Answer: Let the amount invested at 6% be x. Then the amount invested at 8% is (2000 - x).

0.06x + 0.08(2000 - x) = 150 0.06x + 160 - 0.08x = 150 -0.02x = -10 x = \$500.00 at 6% 2000 - 500 = \$1500.00 at 8%Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems

148) Bow Valley Electronics sold a mini stereo set during a sale for \$776. Determine the regular selling price of the set if the price of the set had been reduced by 1/4 of the original regular selling price.

Answer: Let the regular selling price be x.

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Sale price = \left| x - \frac{1}{4}x \right|

\therefore x - \frac{1}{4}x = 776

4x - x = 3104

3x = 3104

x = 1034.67

The regular selling price was $1034.67.

Diff: 2 Type: SA Page Ref: 78-82

Topic: 2.7 Solving Word Problems
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149) After an increase of 1/9 of his current hourly wage, Pierre will receive a new hourly wage of \$12.35. How much is his hourly wage before the increase? Answer: Let the original hourly wage be \$r

New hourly wage =
$$\left\{x + \frac{1}{9}x\right\}$$

 $\therefore x + \frac{1}{9}x = 12.35$
 $9x + x = 111.15$
 $10x = 111.15$
 $x = 11.12$
The hourly wage before increase was \$11.12.
Diff: 2 Type: SA Page Ref: 78-82
Topic: 2.7 Solving Word Problems

150) After a reduction of $\frac{1}{14}$ of the selling price, a VCR was sold for \$470.00. Determine the

regular selling price. Answer: Let the regular price be *y*.

Then reduction in price is $\frac{1}{14}y$.

 $y - \frac{1}{14}y = 470$ $\frac{13}{14}y = 470$

y = \$506.15 The regular selling price is \$506.15. Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems

151) A rubber tube 120 cm long is cut into two pieces so that the longer piece is 30 cm longer than twice the length of the shorter piece. What is the length of the longer piece? Answer: Let the shorter piece be x cm. Length of the longer piece = (2x + 30) cm. Total length = (x + 2x + 30) cm. $\therefore x + 2x + 30 = 120$ 3x = 90x = 30The longer piece is 2(30) cm + 15 cm = 75 cm. Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems 152) A clothing store sells fancy hats at a gross margin of \$3.50 each and ordinary hats at a gross margin of \$5.00 each. During July, 110 hats were sold for a total gross margin of \$460.00. How many fancy hats were sold?

Answer: Let the number of fancy hats be y. Then the number of ordinary hats = 110 - y. The total gross margin on fancy hats = \$5(y). The total gross margin on ordinary hats = \$3.5(110 - y) 5y + 3.5(110 - y) = 460 5y + 385 - 3.5y = 460 1.5y = 75 y = 50The number of fancy hats sold = 50. Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems

153) An electronics company has been producing 1705 CD Players a day working two shifts. The second shift has produced 95 CD players fewer than four-fifths of the number of CD players produced by the first shift. Determine the number of CD players produced by the second shift. Answer: Let the number of CD players produced by the first shift be x.

95 = 705.

Number of CD players produced by the second shift = $\frac{4}{5}x$ - 95.

Total production =
$$x + \frac{4}{5}x - 95 = 1705$$

 $\therefore x + \frac{4}{5}x - 95 = 1705$
 $\frac{9}{5}x = 1800$
 $x = 1000$
Production by the second shift is $\frac{4}{5}x(1000)$ -
Diff: 2 Type: SA Page Ref: 78-82

Topic: 2.7 Solving Word Problems

154) A machine requires five hours to make a unit of Product A and six hours to make a unit of Product B. Last month the machine operated for 250 hours producing a total of 60 units. How many units of Product A were produced?

Answer: Let the number of units of product A be x. Then the number of units of product B is 60 - x. The number of hours for product A is 5x. The number of hours for product B is 6(60 - x). $\therefore 5x + 6(60 - x) = 350$ 5x + 360 - 6x = 350

-x = -10 x = 10Production of product A is 10 units. Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems

155) The local amateur soccer club spent \$1640 on tickets to a professional hockey game. If the club bought 2.5 times as many eight-dollar tickets than the number of twelve-dollar tickets and four fewer fifteen-dollar tickets than 7/10 the number of twelve dollar tickets, how many of each type of ticket did the club buy?

Answer: Let the number of 12 tickets be *x*.

Number of \$8 tickets = 2.5x

Number of \$15 tickets = $\frac{7}{10}x - 4$

Value of the \$12 tickets = 12xValue of the \$8 tickets = 8(2.5x)

Value of the \$15 tickets = $$15(\frac{7}{10}x - 4)$

 $\therefore 12x + 8(2.5x) + 15 (7/10x - 4) = \1640 12x + 20x + 10.5x - 60 = 1640 42.5x = 1700 x = 40Sales were 40 \$12 tickets, 100 \$8 tickets, and 24 \$15 tickets.

Diff: 3 Type: SA Page Ref: 78-82

Topic: 2.7 Solving Word Problems

156) Evaluate s: $s = ut + \frac{1}{2}at^2$ for u = 15, a = 32, t = 5Answer: $s = 15(5) + \frac{1}{2}(32)(5)^2$ = 75 + 400 = 475 Diff: 2 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 157) Evaluate s: $s = ut + \frac{1}{2}at^{2}$ for u = 20, a = 10, t = 5Answer: $s = 20(5) + \frac{1}{2}(10)(5)^{2}$ = 100 + 125 = 225Diff: 2 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions

158) Evaluate z: $z = 5x^2 - 5xy - 3y^2$ for x = -6, y = +5Answer: $z = 5(-6)^2 - 5(-6)(5) - 3(5)^2$ = 5(36) + 150 - 3(25)= 180 + 150 - 75= 255Diff: 2 Type: SA Page Ref: 45-46

Topic: 2.1 Simplification of Algebraic Expressions

159) Evaluate c: c = 8(7a - 4b) - 4(5a + 3b) for $a = \frac{1}{3}$, $b = -\frac{5}{4}$

Answer:

$$c = 8\left[7\left(\frac{1}{3}\right) - 4\left(-\frac{5}{4}\right)\right] - 4\left[5\left(\frac{1}{3}\right) + 3\left(-\frac{5}{4}\right)\right]$$
$$= 8\left[\frac{7}{3} + \frac{20}{4}\right] - 4\left[\frac{5}{3} - \frac{15}{4}\right]$$
$$= \frac{56}{3} + \frac{160}{4} - \frac{20}{3} + \frac{60}{4}$$
$$= \frac{36}{3} + \frac{220}{4} = 12 + 55 = 67$$

Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions

160) Evaluate K: $K = \frac{2NC}{P(n+1)}$ for N = 112, C = 250, P = 2450, n = 24 Answer: For N = 12, C = 400, P = 2000, n = 24 $K = \frac{2NC}{P(n+1)} = \frac{2(112)(250)}{2450(24+1)} = \frac{56000}{61250} = .914286$ Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 161) Evaluate T: $T = \frac{I}{Pr}$ for I = 224, P = 6700, r = 0.11 Answer: For I = 324, P = 5400, r = 0.15 $T = \frac{I}{Pr} = \frac{224}{6700x.11} = \frac{224}{737} = .3039349$ Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions

162) Evaluate P: P = S(1 - dt) for S = 1886, $d = 0.15, t = \frac{249}{365}$

Answer:

 $P = 1886 \left(1 - .15 \times \frac{249}{365} \right)$ = 1886(1 - .15 × .6821918) = 1886(1 - .1023288) = 1886(.8976712) = 1693.01

Diff: 2 Type: SA Page Ref: pgs 45-46 Topic: 2.1 Simplification of Algebraic Expressions

163) Evaluate P:
$$P = \frac{S}{1 + rt}$$
 for S = 1665, $r = 0.14$, $t = \frac{292}{365}$

Answer:

$$P = \frac{1665}{1 + .14 \times \frac{292}{365}} = \frac{1665}{1 + .14 \times .8} = \frac{1665}{1 + .112} = \frac{1665}{1.112} = \$1497.30$$

Diff: 3 Type: SA Page Ref: pgs 45-46 Topic: 2.1 Simplification of Algebraic Expressions

164) Evaluate P: $P = \frac{S}{1 + rt}$ for S = 1000, r = 0.1, $t = \frac{180}{360}$

Answer:

$$\mathbf{P} = \frac{1000}{1 + .1 \times \frac{180}{360}} = \frac{1000}{1 + .1 \times .5} = \frac{1000}{1 + .05} = \frac{1000}{1.05} = \$952.38$$

Diff: 3 Type: SA Page Ref: 45-46 Topic: 2.1 Simplification of Algebraic Expressions 165) Compute: $\frac{19}{\sqrt{1.36}}$ Answer: $\sqrt[19]{1.36} = 1.016315$ Diff: 2 Type: SA Page Ref: 56-59 Topic: 2.3 Fractional Exponents 166) Compute: $\frac{1 - 1.04 - 35}{0.05}$ Answer: $\frac{1 - 1.04 - 35}{.05} = \frac{1 - .2534155}{.05} = \frac{.7465845}{.05} = 14.93169$ Diff: 3 Type: SA Page Ref: 60 **Topic: 2.3 Fractional Exponents** 167) Compute: $\frac{1 - 1.02 - 40}{0.02}$ Answer: $\frac{1 - 1.02 - 40}{.02} = \frac{1 - .4528904152}{.02} = \frac{.5471095848}{.02} = 27.36$ Diff: 3 Type: SA Page Ref: 60 **Topic: 2.3 Fractional Exponents** 168) Compute: ln 1.257 Answer: ln 1.257 = .228728 Diff: 1 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects 169) Compute: $\ln[3.00e^{-.3}]$ Answer: $\ln(3.00e - .3)$ $= \ln 3.00 + \ln e^{-.3}$ $= \ln 3.00 - .3 \ln e$ = 1.0986123 - .3=.7986123Diff: 3 Type: SA Page Ref: 61-66 Topic: 2.4 Logarithms-Basic Aspects 170) Solve: x - 0.26x = 8.96Answer: x - .26x = 8.96, .74x = 8.96, x = 12.10811Type: SA Page Ref: 68-73 Diff: 1 Topic: 2.5 Solving Basic Equations 171) Solve: x - 0.75x = 9.00Answer: x - .75x = 9.00, .25x = 9.00, x = 36.00Diff: 1 Type: SA Page Ref: 68-73 **Topic: 2.5 Solving Basic Equations**

172) Solve: 0.4x - 4 = 6 - 0.8xDiff: 1 Type: SA Page Ref: 68-73 Topic: 2.5 Solving Basic Equations 173) Solve: (3 - 5x) - (9x - 1) = 80Answer: (3 - 5x) - (9x - 1) = 803 - 5x - 9x + 1 = 804 - 14x = 80-14x = 76x = -5.42857Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 174) Solve: 5(8x - 2) - 5(3x + 5) = 36Answer: 5(8x - 2) - 5(3x + 5) = 3640x - 10 - 15x - 25 = 3625x - 35 = 3625x = 71x = 2.84Diff: 2 Type: SA Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification 175) Solve: $x + \frac{7}{10}x + \frac{1}{2} + x + \frac{4}{5}x + 1 = 256$ Answer: $x + \frac{7}{10}x + \frac{1}{2} + x + \frac{4}{5}x + 1 = 256$ x + .7x + 1.8x + 1.5 = 2563.5x = 254.5x = 72.71429Diff: 3 Page Ref: 73-76 Type: SA Topic: 2.6 Equation Solving Involving Algebraic Simplification 176) After reducing the regular selling price by 1/7, Moon Electronics sold a TV set for \$294. What was the regular selling price?

Answer: Let the regular selling price be x.

Reduction in price + $\$\frac{1}{7}x$

$$x - \frac{1}{7}x = 294$$
$$\frac{6}{7}x = 294$$

x = \$343.00Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems

177) After reducing the regular selling price by 1/8, Sepaba Inc. sold a Stereo set for \$300. What was the regular selling price? Answer: Let the regular selling price be \$x.

Reduction in price + $\$\frac{1}{8}x$

$$x - \frac{1}{8}x = 300$$

 $\frac{7}{8}x = 300$
 $x = 342.86
Diff: 2 Type: SA Page Ref: 78-82

Topic: 2.7 Solving Word Problems

178) The zinc department of a factory occupies 500 square metres more than 2 times the floor space occupied by the copper department. The total floor space is 9500 square metres. Determine the floor space occupied by the cooper department.

Answer: Let the floor space occupied by copper be x. Floor space occupied by zinc = 2x + 500Total floor space = x + 2x + 500 $\therefore \quad x + 2x + 500 = 9500$ 3x = 9000 x = 3000The floor space occupied by copper is 3000 square metres. Diff: 2 Type: SA Page Ref: 78-82 Topic: 2.7 Solving Word Problems 179) A company employs 204 employees. There are three shifts. There are three times as many on the first shift as on the second shift, and four more on the third shift than on the second shift. Determine how many were on each shift.

Answer: Let x be the number on the second shift. Then 3x is the number on the first shift.

And x + 4 is the number on the third shift.

x + 3x + (x + 4) = 204 5x = 200 x = 40 on the second shift 3x = 120 on the first shift x + 4 = 44 on the third shiftDiff: 2 Type: SA Page Ref: pgs 79-82 Topic: 2.7 Solving Word Problems

180) A machine requires 4 hours to make a unit of Product A and 7 hours to make a unit of Product B. The machine operated for 810 hours producing a total of 150 units. How many units of Product B were produced? Answer: Let the number of units of Product A be *x*. Number of units of Product B = 150 - x. Number of hours for Product A = 4x. Number of hours for Product B = 7(150 - x). \therefore 4x + 7(150 - x) = 810 4x + 1050 - 7x = 810-3x = -240x = 80The number of units if Product B is 150 - 80 = 70. Type: SA Page Ref: pgs 79-82 Diff: 2 Topic: 2.7 Solving Word Problems 181) Simplify: $\frac{25a^{6}b^{8}c^{10}}{5a^{2}b^{4}c^{5}}$ A) $20a^4b^4c^5$ B) 5a4b4c5C) $5a^{3}b^{2}c^{2}$ D) $20a^{3}b^{2}c^{2}$ E) 55a4b4c5 Answer: B Diff: 1 Type: MC Page Ref: pgs 49-56 **Topic: 2.2 Integral Exponents**

182) Simplify: (5x - 4)(3x + 1)A) $15x^2 - 7x + 4$ B) 15*x*² - 7*x* - 4 C) $15x^2 + 7x - 4$ D) $-15x^2 - 7x + 4$ E) $-10x^2 - 7x + 4$ Answer: B Diff: 1 Type: MC Page Ref: pgs 42-44 Topic: 2.1 Simplification of Algebraic Expressions 183) Simplify: (3)²(3)⁵ A) 30 B) 90 C) 59 049 D) 2187 E) 120 Answer: D Diff: 1 Type: MC Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents 184) Simplify: $[(2^3)^4]^2$ A) 16777216 B) 17666216 C) 12222617 D) 17222167 E) 17333167 Answer: A Diff: 1 Type: MC Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents 185) Compute the value of (four decimal places): $\frac{4^{-7}}{3^{-6}}$ A) .0045 B).5449 C).4459 D).0445 E) 0.044946 Answer: E Diff: 1 Type: MC Page Ref: pgs 49-56 Topic: 2.2 Integral Exponents

186) Simplify: (m²)6 A) m12 B) m-4 C) m⁸ D) m³ E) m² Answer: A Diff: 1 Page Ref: pgs 49-56 Type: MC **Topic: 2.2 Integral Exponents** 187) Calculate the following: $\ln \left[1.67 \times \left(\frac{2.13 - 15}{.0034} \right) \right]$ A) 5.145 B) 1.545 C) -5.145 D) -1.545 E) -5.145 Answer: E Diff: 1 Type: MC Page Ref: pgs 61-66 Topic: 2.4 Logarithms-Basic Aspects 188) Simplify: [(33) - 62]3 A) 279 B) -279 C) 729 D) -729 E) 972 Answer: D Diff: 1 Type: MC Page Ref: 49-56 Topic: 2.2 Integral Exponents 189) Solve the following equation: 5x - 4 + 9 = -3x - 2 - 13A) 2.5 B) -2.5 C) 20 D) -20 E) -25 Answer: B Diff: 1 Type: MC Page Ref: 68-73 Topic: 2.5 Solving Basic Equations

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190) Solve the following and check your solutions: 12x + 5(9 - x) = 429A) 58.86 B) -58.86 C) 54.14 D) -54.14 E) -5.14 Answer: A Diff: 1 Type: MC Page Ref: 73-76 Topic: 2.6 Equation Solving Involving Algebraic Simplification

191) You have a lotto ticket with three numbers between zero and 49. The total of the three numbers is 93. One number is twice as large plus two as the lowest number. The second number is $\frac{4}{3}$ the size of the smaller number. What are the values of each of the numbers? A) 1-44, 2-28, 3-21 B) 1-41, 2-31, 3-21 C) 1-44, 2-25, 3-24 D) 1-44, 2-20, 3-15 E) 1-44, 2-15, 3-20 Answer: A Diff: 3 Type: MC Page Ref: 79-82 Topic: 2.7 Solving Word Problems 192) Simplify: 11.57843/7 A) 3.857 **B**) 4.857 C) 2.857 D) 2.587 E) 4.785 Answer: C Type: MC Diff: 1 Page Ref: 56-59 **Topic: 2.3 Fractional Exponents**

193) You have three colors of candies a jar - yellow, red and blue. There are 4 times plus 3 as many yellow candies as there are blue candies. There is 5/8 as many minus 6 red candies as there are blue. There are a total of 402 candies in the jar. How many of yellow, blue and red candies are there?

A) y-290, b-73, r-39 B) y-291, b-73, r-38 C) y-291, b-72, r-39 D) y-292, b-72, r-38 E) y-292, b-72, r-37 Answer: C Diff: 3 Type: MC Page Ref: pgs 79-82 Topic: 2.7 Solving Word Problems