

**MPM 1DI June 2013 Exam Review Answer Key****Unit 1: Rational Numbers and Exponents**

1a)  $-\frac{11}{8}$  b)  $-\frac{36}{55}$  c) 2 d)  $\frac{53}{12}$  2a)  $4^3$  b)  $3^8$  c)  $4^6$  d)  $4^4$  e)  $3^2$  f)  $g^4$  g)  $x^3$  h)  $a^1$  i) 0

**Unit 2: Algebra**

1a)  $-7x^2 - xy$  b)  $8q^4x^2 - m^4x^2 - 3xy$  c)  $-gp^3 - 5pg^2 + 2pg + 4$  d)  $6n - m$  e)  $4y^2 - 12y + 9$   
 f)  $10x^2 - 12xk - 8k^2$   
 2a)  $3(2d - 7)$  b)  $3y^5(3y^5 - 24y^2 + 2)$  c)  $x^3y(x^2y^5 + 125y^4 - 100x)$   
 3a)  $4 + 2pq^2$  b)  $x^3 - 2x^2 + 3x + 5$  c)  $12xy^2 - 7$   
 4) Perimeter  $P = 6x^3y^4 + 6x^3y^3 - 4x^2y$ ; For  $x = 1, y = 2$   $P = 136$

**Unit 3: Equations**

1a)  $x = -3$  b)  $x = \frac{7}{3}$  c)  $y = 5$  d)  $j = 2$  e)  $k = -\frac{26}{15}$  f)  $x = 3$   
 2a)  $y = 2x - \frac{1}{2}$  b)  $x = \frac{1}{2}y + \frac{1}{4}$  c)  $y = \frac{15}{2}$  d)  $x = -\frac{3}{4}$   
 3a)  $8A + 10B = 1700$  b)  $B = 50 \text{ kg}$  4a)  $\frac{530}{3} = 176.67 \text{ Celsius.}$  b)  $-40^\circ$   
 5a)  $(x, y) = (2, 7)$  b)  $(x, y) = \left(\frac{27}{2}, -7\right)$  6) Son is 15 and father is 45 years old.  
 7a)  $45A + 15R = 210$  b)  $A = 2 \text{ kg}, R = 8 \text{ kg.}$  8) \$620

**Units 4+5: Graphing relations And Equation of a Straight Line**

- 1a)  $x$  - intercept  $(x, y) = (6, 0)$   $y$  - intercept  $(x, y) = (0, 4)$  2)  $b = 8$  3)  $y = -10x - 36$   
 4a)  $38x - 9y + 16 = 0$ ,  $(A, B, C) = (38, -9, 16)$  b)  $y = \frac{38}{9}x + \frac{16}{9}$   
 5a)  $y = \frac{2}{5}x + 5$  b)  $y = -\frac{5}{2}x + 6$  6a) Point of intersection  $(x, y) = (1, -5)$   
 7a) Linear because finite differences are constant. b) Direct, graph goes through the origin  
 c) Independent : Time, Dependent : Distance. d) slope =  $70 \frac{km}{h}$  (speed) e)  $D = 70t$   
 8b) Partial, the pressure is not zero at zero depth.  
 8c) Independent Variable : Depth, Dependent Variable : Pressure  
 8d)  $4.5 atm$  e)  $45 m$  f)  $P = 0.1D + 1$

**Unit 6: Geometry**

- 1a)  $(a, b, c) = (100^\circ, 80^\circ, 100^\circ)$  b)  $x = 55^\circ$  c)  $y = 100^\circ$  2)  $A + B = 180^\circ$   
 4a)  $n = 21$  sides b) Interior angle =  $\frac{1140^\circ}{7}$ , Exterior angle =  $\frac{120^\circ}{7}$  5) 18 sides 6) 36 sides  
 7a) False, the number of sides would not be an integer.  
 7b) False, the diagonals of a kite, rhombus intersect at  $90^\circ$  and they are not squares.  
 8a) Number of points  $(2, 3, 4, 5) \rightarrow$  Number of lines  $(1, 3, 6, 10)$  8b) Number of lines =  $\frac{N(N-1)}{2}$

**Unit 7: Measurement**

- 1)  $A = 5582 cm^2$  2)  $A = 43.3 cm^2$   
 3) Length = 1.73 cm 4)  $V = 565.5 cm^3$ ,  $SA = 433.5 cm^2$   
 5)  $V = 904.8 cm^3$ ,  $SA = 579.4 cm^2$  6)  $V = 15.5 cm^3$   
 7)  $SA = 262.5 cm^2$  8)  $V = 254.0 cm^3$   
 9)  $V = 10111.5 cm^3$ ,  $SA = 2774.1 cm^2$   
 9b)  $V = 3370.5 cm^3$ ,  $SA = 1439.82 cm^2$   
 10)  $(l, w, h, SA) = (1, 16, 32, 1120 cm^2)$   $(l, w, h, SA) = (16, 4, 8, 448 cm^2)$   
 $(l, w, h, SA) = (32, 2, 8, 672 cm^2)$  c)  $(l, w, h, SA) = (8, 8, 8, 384 cm^2)$   
 11) \$174.37 12)  $V = 782.24 cm^3$  13) No.  $V_{max} = 1000 cm^3 = 1 L$

