

# GRADE 10

# MATHEMATICS

**MARCH TEST**

**MEMO**

**2018**

**MARKS: 50**

**This memo consists of 4 pages**

**QUESTION 1**

|  |  |  |
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| 1.1 | Let *x*$ =0,282828 . . . . . . . . . . . (i)$$ 100 x= 28,2828$ . . . . . . . . (ii) 99*x =*28  ∴ *x =* | ✓ equation (i) and (ii)✓ 99*x =*28✓ answer (3) |
| 1.2 | $49<\sqrt{54}<64$ $\sqrt{36}<\sqrt{42}<\sqrt{49}$$\sqrt{49}<\sqrt{54}<\sqrt{64}$ $6<\sqrt{42}<7$$$7<\sqrt{54}<8$$$\sqrt{54}$ lies between 7 and 8 | ✓ $49<\sqrt{54}<64$ ✓ $7<\sqrt{54}<8$✓ conclusion (3) |
| 1.3.1 | $a^{3}-a^{2}=a(a-1$) | ✓ $a(a-1)$ (1) |
| 1.3.2 | $$y^{2}-z^{2}-yx-zx$$$$\left(y+z\right)\left(y-z\right)-x(y+z)$$$$(y+z)(y-z-x)$$ | ✓ common factor✓difference of 2 squares✓ answer (3) |
| 1.4.1 | $$\frac{(y-3)(y+2)}{y(y-3)} ×\frac{1}{y+2}$$$$=\frac{1}{y}$$ | ✓ factors (numerator & denominator)✓ $\frac{1}{y+2}$ and multiplication sign✓ answer (3) |
| 1.4.2 | $= \frac{3^{2x}.3-3^{2x}}{3^{x}.3^{2x}.3}$ $\frac{3^{2x}.3^{2}-3^{2x}}{3^{x}.3^{2x}.3^{1}}$$= \frac{3^{2x}(3-1)}{3^{x}.3^{2x}.3}$ $= \frac{3^{2x}(3^{2}-1)}{3^{x}.3^{2x}.3}$$=\frac{2}{3^{x+1}} $ $=\frac{8}{3^{x+1}}$ | ✓ simplification✓ common factor✓ answer (3) |
| 1.5 | $$3x^{2}-px-6$$=$(x-3)(3x+2)$=$3x^{2}-7x-6$$d=7$ $p=7$ | ✓ other factor✓ product✓ answer (3) |
|  **[19]** |

**QUESTION 2**

|  |  |  |
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| 2.1 | $$x=26$$ | ✓ answer (1)  |
| 2.2.1 | $$2x=12$$$$x=6$$ | ✓ answer (1)  |
| 2.2.2 | $$x^{2}-6x-27=0$$$$(x-9)(x+3)=0$$$x=9$ or $x=-3$ | ✓ standard form✓ factors✓ both answers (3) |
| 2.2.3 | $$2^{-x}=2^{-3}$$$$-x=-3$$$$x=3$$ | ✓ equating exponents ✓ answer (2) |
| 2.2.4 | $$v^{2}-u^{2}=2ax$$$$x=\frac{v^{2}-u^{2}}{2a}$$ | ✓ $v^{2}-u^{2}=2ax$ ✓ answer (2) |
| **2.3** | $$-6y-2x=2$$$$-3y-x=1$$$-3y-1=x$ (i)Substitute $x$ into equation (i)$$2\left(-3y-1\right)+3y=4$$$$-6y-2+3y=4$$$$-3y=6$$$$y=-2$$$-3\left(-2\right)-2=x$ $-3\left(-2\right)-1=x$ $x=4$ $∴x=5$ | ✓ equation✓ correct substitution ✓ *y* - answer ✓ *x* - answer (4)  |
| 2.4 | $$a^{2}-b^{2}=8$$$$\left(a+b\right)\left(a-b\right)=8$$but $\left(a+b\right)=2$$$2\left(a-b\right)=8$$$$a-b=4$$$$-b+a=4$$$$-(b-a)=4$$$$b-a=-4$$ | ✓$2\left(a-b\right)=8$✓$a-b=4$✓ $b-a=-4$ (3) |
| 2.5 | $0\leq x<5$ **,** $x\in N\_{0}$ | ✓ end points✓ notation (2) |
| 2.6 | $$3\left(x-12\right)=2x-12$$$$3x-36=2x-12$$$$x=24$$ | ✓both equations ✓simplification✓answer (3) |

 **[21]**

**QUESTION 3**

|  |  |  |
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| 3.1.1 | $$18, 15$$ | ✓ ✓ answer (2) |
| 3.1.2 | $$T\_{n}=-3n+c$$$$27=-3(1)+c$$$$c=30$$$$T\_{n}=-3n+30$$ | ✓ substitution ✓ value of c✓ answer (3)  |
| 3.1.3 | First term negative, look for a zero term$$0=-3n+30$$$$3n=30$$$$n=10$$term 11 is the first negative term, and the value of the term is$-3$. ORTerm number 11, the value of the term is $-3$ | ✓ the value of n✓ answer ✓ pattern✓ answer (2) |
| 3.2.1 | 14 pieces  | ✓ answer (1)  |
| 3.2.2 | No. the formula does not take the size of an apple into account.  | ✓ no ✓ explanation (2) |
|  **[10]** |

 **TOTAL: 50**