J.M.J.

# MARCELLIN COLLEGE RANDWICK

YEAR 9

## ADVANCED 2 MATHEMATICS

## HALF YEARLY EXAM

## ASSESSMENT TASK # 3

2005

ALGEBRA ; QUADRATICS ; SIMPLE EQUATIONS

**Weighting: 30% of Assessment Mark.**

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**STUDENT NAME:** _____ **MARK:** / 75

**PERCENTAGE:** %

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**Time Allowed:** $1\frac{1}{2}$ *hours*

**Directions:**

- Answer all questions on the paper
- Show all necessary working.
- Marks may not be awarded for careless or badly arranged work.

1. Express $0.\dot{8}$ as a fraction in it's simplest form **2**

2. The cost of a calculator is now $33.60. If it has increased by 5%, how much was it worth originally? **3**

3. I get $150 a week for a casual job. If I spend $\frac{1}{10}$ on bus fares, $\frac{2}{15}$ on lunches and $\frac{1}{3}$ on entertainment. How much money is left over for savings? **3**

4. Express 45 km/h in m/s **3**

5. John and Luke are sharing a packet of chewing gum in the ratio 5:7. If a packet contains 60 pieces of gum, how many will John receive? **3**

6. Simplify $\frac{2}{x^2-4}-\frac{3}{x+2}$ 4

7. Simplify $\frac{3}{y+2}\times\frac{y^2+2y}{6y-3}$ 2

8. Evaluate $\sqrt[3]{\frac{8.3\times4.1}{0.2+5.4\div1.3}}$ correct to 3 significant figures 3

9. Factorise the following

a) $x^2-64$ 1

b) $x^2 - 5x - 24$ 1

c) $6y^2 + 47y - 8$ 3

d) $10x^2 - 11x - 6$ 4

e) $m^2 - n^2 + 2m - 2n$ 2

10. Simplify $\dfrac{x^2-7x-8}{x^2+3x+2}$ 3

11. Solve the following equations

a) $3-2x=1$ 2

b) $\dfrac{3x+4}{2}=-1$ 3

c) $\dfrac{7m-3}{4}=-2(m+1)$ 4

d) $6t-(t-9)=-3t$ 3

e) $\frac{4x-1}{2}-\frac{2x+5}{3}=0$ 4

f) $\frac{2x-4}{5}+6=\frac{x}{2}$ 4

g) $\frac{5}{2x-1}=4$ 3

12. Solve $5p-9 \geq 11$ **2**

13. Solve $-a-7<-2$ **3**

14. Change the subject of the following formula to $a$

a) $v=\dfrac{a-u}{t}$ **3**

b) $x=\sqrt{\dfrac{a}{y}}$ **3**

c) $y=\dfrac{a+3}{1+a}$ **4**

# ANSWERS TO MARCELLIN COLLEGE 2005
# YEAR 9 – HALF YEARLY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **1** | $\frac{8}{9}$ | **2** | \$32 | **3** | \$65 | **4** | 12.5 m/s | **5** | 25 gums |
| **6** | $\frac{8-3x}{(x+2)(x-2)}$ | **7** | $\frac{y}{2y-1}$ | **8** | 1.98 | **9 a** | $(x+8)(x-8)$ | **b** | $(x-8)(x+3)$ |
| **c** | $(6y-1)(y+8)$ | **d** | $(2x-3)(5x+2)$ | | | **e** | $(m-n)(m+n+2)$ | **10 a** | $x=1$ |
| **b** | $x=-2$ | **c** | $m=-\frac{1}{3}$ | **d** | $-1\frac{1}{8}$ | **e** | $x=1\frac{5}{8}$ | **f** | $x=52$ |
| **g** | $x=1\frac{1}{8}$ | **12** | $p\geq 4$ | **13** | $a>-5$ | **14 a** | $a=u+at$ | **b** | $a=x^2y$ |
| **c** | $a=\frac{3-y}{y-1}$ | | | | | | | | |

- **Updated 03/06**