

ST. CATHERINE'S COLLEGE

Name: _____

Teacher's name: _____

Year 11 Common Mathematics Test 1
Term 1 2004

Time: 55 minutes *50 marks*

1m

1. Evaluate, giving your answer correct to 3 sig figs:

$$\frac{\sqrt{2.3^3 + 5.7^4}}{3 \times 2.4 \times 50}$$

4m

2. (a) The profit of a company rose by 3% to \$1,354,652. Find the profit of the company before the rise.

(b) The population of rats in Toogaloo is 4.6×10^4 . If they each eat 5.8 kg of scraps per day, find the total amount they consume in a year. Give your answer in scientific notation correct to 2 sig figs.

3m

3. Expand and simplify the following:

(a) $(x-3)(x+5)$

(b) $(2x-3)^2$

(c) $(p-qw)(p+qw)$

4. Simplify the following:

(a) $8x - (x-1)(x+1)$

6m

(b) $\frac{x+2}{3} + \frac{x-3}{2}$

5. Factorise the following:

(a) $A^3 - 2A^2$

(b) $x(x-p) - y(x-p)$

(c) $x^2 - 6x + 8$

(d) $1 - r^2$

4m

6. Solve the following equations for x:

(a) $\frac{x+3}{x-2} = \frac{2}{3}$

8m

(b) $(x-4)(x+1) = 0$

(c) $x^2 = 3x$

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3m

7. (a) Solve by completing the square, leaving your answer in surd form:

$$x^2 - 4x - 1 = 0$$

(c) $\frac{a}{a+2} + \frac{a-3}{a^2-3a-10}$

(b) Solve the equation giving your answer correct to 2 decimal places:

$$x^2 = 5x - 1$$

9. Factorise:

(a) $p^3 - 8$

7m

(b) $x^2 - (y-4)^2$

10. Solve for x:

$$(x+2)(x-2) + (x-3)(x+1) = 5$$

8. Simplify the following:

(a) $\frac{1}{x-y} - \frac{1}{y-x}$

ANSWERS TO ST CATHERINE'S COLLEGE – YR 11 - 2004
TERM 1 ASSESSMENT

1	9.8×10^{-2}	2 a	\$1315196.10	b	9.7×10^7	3 a	$x^2 + 2x - 15$	b	$4x^2 - 12x + 9$
c	$p^2 - q^2 w^2$	4 a	$-x^2 + 8x + 1$	b	$\frac{5x-5}{6}$	5 a	$A^2(A-2)$	b	$(x-y)(x-p)$
c	$(x-1)(x-4)$	d	$(1+r)(1-r)$	6 a	$x = -13$	b	$x^2 - 3x - 4$	c	$x = 0$ or 3
7 a	$x = 2 \pm \sqrt{5}$	b	4.79 or 0.21	8 a	$\frac{2}{x-y}$	b	$\frac{(a-3)(a-1)}{(a+2)(a-5)}$	9 a	$(p-2)(p^2 + 2p + 4)$
b	$(x+y-4)(x-y+4)$	10	$x = -2$ or 3						

8/03/06