EDEN MARINE HIGH SCHOOL

YEAR 9 ASSESSMENT TASK - MAY 2005

NAME: _____

CALCULATORS MAY NOT BE USED

SECTION I   All questions in this section are worth 1 mark.
Answer in the space provided.

QUESTION	ANSWER	QUESTION	ANSWER
1) $0.56 \times 100 =$		21) Simplify $\dfrac{5}{8} \times \dfrac{1}{2}$	
2) $2\dfrac{1}{2} + 1\dfrac{1}{2} =$		22) By how much is $\dfrac{1}{2}$ less than $\dfrac{5}{8}$?	
3) $-4 \times 8 =$		23) Find $\sqrt{64}$	
4) Simplify $\dfrac{12}{18}$		24) Decrease $500 by 25%	
5) Add $26.75 to $2.25		25) $75 \div 2.5 =$	
6) What is the time 3 hrs and 15 min after 4:30 pm?		26) Round 12.595 to 2 decimal places	
7) What is the value of $8.72 correct to the nearest 5 cents?		27) Double the sum of 4 and 5	
8) Find $5^2 + 1^3$		28) Write 2 million, 3 thousand and ten in numerals	
9) $3.5 \times 20 =$		29) Find the average of 6, 4, 2 and 10.	
10) Find 10% of $87		30) Write $2\dfrac{2}{3}$ as an improper fraction	
11) Write $\dfrac{4}{5}$ as a percentage		31) A test mark is 24 out of 40. What is this as a percentage?	
12) Write $1\dfrac{1}{2}$ as a decimal		32) Write 0.4 as a simple fraction	
13) $15 \times 3 - 4 \times 2 =$		33) Write a whole number in the box to get an answer between 8 and 8.5. $\sqrt{\Box}$	
14) Write 2.786 to the nearest hundredth			
15) Add 43 to the product of 8 and 6.		34) $\dfrac{3}{8} < \dfrac{1}{3}$ True or False?	
16) Write a decimal number between 1.4 and 1.45		35) Round 0.0917 to 2 significant figures.	
17) Find the cost of 50 rulers at 30 cents each.		36) Write $\dfrac{93}{1000}$ as decimal	
18) Find 15% of $80		37) Subtract 3.55 from 10	
19) Increase $95 by 10%		38) $4\dfrac{1}{3} - 2\dfrac{1}{2} =$	
20) Arrange in ascending order 0.1, 0.042, 0.5, 0.15		39) The crowd at the footy was 39678. Round this to 2 significant figures.	
		40) Find the cost of 20 books at $12.50 each.	

SECTION II - Answer in the space provided.
- Marks are as indicated
- Working should be shown when appropriate.

QUESTION	MARKS	QUESTION	MARKS

QUESTION

41) Simplify the following expressions

a) $4x + 5x$ (1 mark)

b) $8a^2 - 13a - 5a^2$ (1 mark)

c) $5w + 7f - 2w - 3f$ (1 mark)

d) $3p^2 \times 2p^5$ (1 mark)

e) $-4a^3b \times 5ab^2$ (1 mark)

f) $12p^3 \div 4p$ (1 mark)

g) $(x^2)^4$ (1 mark)

h) x^0 (1 mark)

i) $7p^0 + (pq)^0$ (2 marks)

QUESTION

42) Expand the following and simplify where possible

a) $5(3t - 4)$ (1 mark)

b) $-2(4 + 5k)$ (1 mark)

c) $4(2q + 1) + 3(4q + 5)$ (2 marks)

d) $3(5h - 2) - (7 - 2h)$ (2 marks)

43) Evaluate the following expressions if $a = 2$, $b = 3$, and $c = -4$

a) $2a$ (1 mark)

b) $\dfrac{ab}{2}$ (2 marks)

c) $b^2 - a$ (2 marks)

d) $2c^2 - a$ (2 marks)

Name _____ Class _____ Due date _____

Complete this homework sheet WITHOUT using a calculator.

Part A

1 2 m = _____ cm

2 3 weeks = _____ days

3 $\frac{1}{2}$ h = _____ min

4 5 kg = _____ g

5 4000 mL = _____ L

6 $7.60 = _____ cents

7 250 g = _____ kg

8 36 h = _____ days

9 1500 cm = _____ m

10 130 cents = $_____

Part B

1 Write a number in the ☐ to make the value of

$$\frac{4 + \square}{\square}$$ between 0 and 2.

2 Issa thought of a number. He added 3 to it and then doubled the result. His answer was 24. What was the number he first thought of? _____

3 Look at this pattern. Write the next row in the pattern.

$1 \times 1 + 1 = 2$
$2 \times 3 + 4 = 10$
$3 \times 5 + 7 = 22$
$4 \times 7 + 10 = 38$
$5 \times 9 + 13 = 58$

_____

Part C

1 50% of $90 = _____

2 10% of $350 = _____

3 25% of $800 = _____

4 50% of $34.60 = _____

5 10% of $48 = _____

6 $33\frac{1}{3}$% of $12 = _____

7 17% of $200 = _____

8 20% of $15 = _____

9 25% of $900 = _____

10 5% of $100 = _____

Part D

Put a number in each ☐ and △ to complete the calculations.

1
```
  2  3  ☐
  4  △  3  +
 ─────────
  6  9  5
```

2
```
  2  8  7
  5  △  ☐  +
 ─────────
  8  8  1
```

3
```
  7  3  ☐
  △  6  5  −
 ─────────
  1  7  2
```

4
```
  ☐  7  1
     9  △  −
 ─────────
  2  7  8
```

5
```
  3  ☐  2
        △  ×
 ─────────
  1  4  4  8
```

6
```
     3  ☐
        7  ×
 ─────────
  2  △  8
```

Topic test 1 — Exploring numbers

- Time allowed: 45 minutes.
- Part A: 20 multiple-choice questions (40 marks)
- Part B: 13 free-response questions (60 marks)

Name:
_____

Part A
20 multiple-choice questions
2 marks each: 40 marks
Circle the correct answer.

1 Find $-7 + (-8)$.

A 15   B 1

C -15   D -1

2 What number goes in the blank in Pascal's triangle below?

```
              1
           1     1
        1     2     1
     1     3     3     1
  1     4     6     4     1
     1     5     □
```

A 10   B 7

C 24   D 6

3 What is the sum of the first 5 odd numbers?

A 45   B 15

C 9   D 25

4 What fraction of this figure is shaded?

A $\frac{7}{12}$ B $\frac{7}{9}$

C $\frac{7}{16}$ D $\frac{7}{8}$

5 Which one of these decimals could be rounded to 34.71?

A 34.715   B 34.7

C 34.707   D 34.7039

6 Simplify $\frac{12}{32}$.

A $\frac{1}{3}$ B $\frac{3}{10}$

C $\frac{3}{7}$ D $\frac{3}{8}$

7 What is the correct value of Δ if $\frac{8}{10} = \frac{\Delta}{40}$?

A 20   B 32

C 5   D 30

8 How many significant figures has 0.00403?

A 5   B 2

C 4   D 3

9 What is half of a quarter?

A $1\frac{1}{4}$ B $\frac{3}{4}$

C $\frac{1}{6}$ D $\frac{1}{8}$

10 What is the average of 8.1 and 8.39?

A 8.19   B 8.245

C 8.2   D 8.29

11 Which operation will convert 87.025 to 87 025?

A divide by 100

B divide by 1000

C multiply by 100

D multiply by 1000

12 Round 758.758 to the nearest tenth.

A 758.76   B 759

C 760   D 758.8

13 $3\frac{1}{4}$ is the same as:

A $\frac{13}{4}$ B $\frac{8}{4}$

C $\frac{31}{4}$ D $\frac{7}{4}$

14 Find $\frac{7}{8}$ of 24.

A 21   B 23

C 15   D 18

15 Which fraction does *not* convert to a recurring decimal?

A $\frac{3}{7}$ B $\frac{3}{8}$

C $\frac{3}{9}$ D $\frac{3}{13}$

16 Find $(18 \div 3 + 6 - 5) \times 2$.

    A -6   B 20

    C 14   D 2

17 Find $\left(\dfrac{7}{8}\right)^2$.

    A $\dfrac{765}{1000}$ B $\dfrac{14}{16}$

    C $\dfrac{49}{64}$ D $\dfrac{14}{64}$

18 Which expression has the same answer as $2.74 \div 0.3$?

    A 0.274×3 B $0.274 \div 3$

    C $274 \div 3$ D $27.4 \div 3$

19 Which of the following is smallest?

    A $\dfrac{1}{4}$ B 0.4

    C $\dfrac{4}{12}$ D 0.04

20 Simplify $\dfrac{15}{9}$.

    A $2\dfrac{1}{3}$ B $1\dfrac{5}{9}$

    C $1\dfrac{2}{3}$ D $2\dfrac{5}{9}$

Part B
13 free-response questions
60 marks
Show working where appropriate

21 (3 marks) Place these decimals in ascending order: 0.851, 0.8, 0.85, 0.805.

22 (6 marks) Find:

    a $\dfrac{2}{3} - \dfrac{1}{4}$ b $\dfrac{2}{3} \times \dfrac{1}{4}$

    c $\dfrac{2}{3} \div \dfrac{1}{4}$

23 (2 marks) What decimal is indicated by the arrow on the number line?

24 (8 marks) Convert to decimals.

    a $\dfrac{7}{8}$ b $\dfrac{14}{25}$

    c $\dfrac{4}{9}$ d $\dfrac{5}{6}$

25 (8 marks) Evaluate:

    a $32 - 2(5 + 2 \times 3)$

    b $10 + 3 \times 8 \div (-2)$

    c $\sqrt{6 \times 12 - 7^2 + 2}$

    d $\dfrac{18.8 + 5.225}{3.1^2}$

26 (4 marks)

    a Write down any fraction and its reciprocal.

    b What is the product of any fraction and its reciprocal?

27 (2 marks) Circle the largest fraction:

    $\dfrac{3}{4}, \dfrac{5}{8}, \dfrac{7}{10}$.

28 (6 marks) Evaluate correct to two decimal places:

    a $4.8 \div 0.52$

    b $\dfrac{1}{\pi}$

    c $\sqrt{8.75 \times 0.7}$

29 (8 marks) Convert to simple fractions:

    a 0.84   b 0.025

    c $0.1\dot{6}$ d $0.\dot{4}\dot{5}$

30 (6 marks) Round these numbers to three significant figures.

    a 7.0426

    b 937 260

    c 0.0037811

31 (3 marks) Insert grouping symbols to make this statement true:

$$24 - 18 \times 3 + 5 = 48$$

32 (2 marks) Place a whole number in the blank to make an improper fraction whose value is between 4 and 5.

$$\dfrac{\square}{3}$$

33 (2 marks) Write down a fraction that is between $\dfrac{1}{4}$ and $\dfrac{2}{5}$.

END OF TEST.

9M1 Rational Numbers and Algebra Topic Test   Name_____

Calculators may be used.

All necessary working must be shown to gain full marks.

1. Express $\frac{1}{3}$ as:

a) a decimal

b) a percentage

2. Convert 12·5% to:

a) a decimal

b) a fraction in simplest form

3. Convert 0·225 to:

a) a percentage

b) a fraction in simplest form.

4. Write the following decimals in ascending order.

   0·303, 0·333, 0·003, 0·330, 0·033

5. Express 44 as a percentage of 80

6. a) Decrease 720 by 12·5%

b) I f 6% of my prizemoney is $90.

   Find the value of the prize?

7. What is the overall percentage change after a percentage increase of 25% is followed by a percentage decrease of 10%?

8. Convert the speed of 40km/h to m/s.

9. Round these numbers to three significant figures.

a) 3·0576   b) 69 817

10. How many significant figures in 0·0307?

11. Convert $0\cdot7\ddot{2}$ to a simple fraction.

(Working must be shown)

Let $x =$

12. Find a cubic number which is also a square number?

13. Find a number whose factors are

   1,2,3,4,6,9,12,18,36

14. List two examples of numbers where the square root of the number is also a square number.

e) $\frac{6e^3f}{15h} \div \frac{2e}{5h} =$

_____

15. Write a 6 digit palindromic number.

f) $\frac{7x}{2} + \frac{2x}{3} =$

16. Complete the number patterns:

a) 1, 8, 27, _____, _____, _____,

b) 1, 1, 2, 3, 5, 8, _____, _____, _____

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

17. Write the next two consecutive even numbers

2n, _____, _____

18. Evaluate when $a = -3$, $b = 6$ and $c = 9$

a) $5a^2 =$

20. Write an algebraic expression for :

a) 4 less than the product of of n and 9

b) $\sqrt{b^2 - 4ac} =$

b) the average of a, b, and c

19. Simplify

a) 5p+9y–p +3y = _____

21. Expand and simplify if possible

b) $5x^2y + 3yx^2 =$ _____

a) $(p + 5)(p + 3) =$

$=$

b) $(2m - 3)(3m - 8) =$

c) $2ab \times 4bc =$ _____

$=$

c) $(10 - 3y)(2 + y) =$

$=$

d) $\frac{4y^2}{3x} \times \frac{3x}{8y} =$

22. Expand these perfect squares

a) $(y + 5)^2 =$

b) $(4x - 3)^2 =$

c) $\left(m + \frac{5}{2}\right)^2 =$

23. Complete these perfect squares

a) $(p - \underline{\quad})^2 = \underline{\quad} - 12p + 36$

b) $(\underline{\qquad\qquad})^2 = 9x^2 + \underline{\qquad} + 100$

c) $(\underline{\qquad\qquad})^2 = h^2 + 22h + \underline{\qquad}$

24. Expand and simplify if possible

a) $(y + 5)(y + 3)(y - 1)$

25. Use the difference of two squares method to expand

a) $(d - 5)(d + 5) =$

b) $(3y + 11)(3y - 11) =$

26. Expand and simplify:
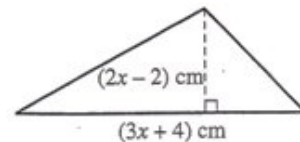
a) $(p + 3)^2 - (p - 2)(p + 2)$

b) $2(9x - 2y)^2$
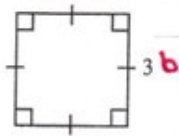
27. Factorise

a) $4x + 8 =$

b) $9x^2 y - 3xy^2 =$

28.

$A = \frac{1}{2}bh,$

$(2x - 2)$ cm

$(3x + 4)$ cm

Write an expanded expression for the area

1. Write 0.8 as a simple fraction.

2. Write 6% as a decimal.

3) Find the perimeter of this square.

3 b

4) Area =

4 What is the cost of $\frac{1}{2}$ kg of tomatoes at $3.80 per kg?

5 A jogger runs 6 km/h. How far will he run in $1\frac{1}{2}$ hours?

6 50% of $17 =

7 Write $\frac{1}{4}$ as a percentage.

8 Write 0.9 as a percentage.

9 Find the reciprocal of:

a $\frac{3}{8}$ b $\frac{1}{5}$ c $2\frac{1}{9}$ d 7

a) _____ b) _____ c) _____ d) _____

10. Find the average of 6, 9, and 15.

11. Simplify 75:125.

12 a) Find the average of 3.2, 3.9 and 2.8.

b) A motorist paid $37.08 for 40 litres of petrol. What was the petrol price in cents/litre?

c) Evaluate $\frac{5.27 \times 3.05}{16.8 - 4.7}$ correct to two decimal places.

d) What number must be added to 9.71 to give 10.15?

e) Tanya earns $8.50 per hour for baby-sitting. How much does she earn for working $3\frac{1}{2}$ hours?

f) Divide $45 in the ratio 2:7

g) Find 10% of $65. _____

QUESTION 13   Complete the equivalent rates.

a) 60 km/h = _____ km/min

b) $5/min = _____ $/h

c) 40 L/h = _____ L/day

d) 30 mL/min = _____ mL/h

QUESTION 14

a   Change 150 km/h to km/min
_____

b   Change 100 km/h to km/s
_____

15. If $h = 8$ and $y = -2$, find the value of:

a $h + y =$ _____

b $y - h =$ _____

c $4y =$ _____

d $3h^2 =$ _____

e $\frac{2y - 5h}{h} =$ _____

16. Simplify.

a) $6a \times 3 =$ _____

b) $3a \times 4d =$ _____

c) $6m \div 2m =$ _____

d) $abc \div bc =$ _____

e) $7a + 3a =$ _____

f) $4e - 10e =$ _____

g) $8ab - 3ab =$ _____

h) $5m - m =$ _____

i) $2pq + 5qp =$ _____

17. Round the following to the number of significant figures indicated in the brackets.

a) 859 (2) _____

b) 0.484 (1) _____

c) 0.0371 (2) _____

NetIncome = GrossIncome − Deductions   **[Use 1 year = 52 weeks]**

1 Calculate the net income in each of the following cases:
 a Gross income = $2160, tax = $676, other deductions = $327.80
 b Gross income = $547, tax = $106.70, other deductions = $94.20

a)   b)

7. Astra is the manager of a jewellery shop. Her salary is $52 000 p.a. Calculate:
 a Astra's *weekly pay*

 b the holiday loading Astra would receive when she takes her 4 weeks annual leave

2. Gretel sells cosmetics and earns a weekly wage of $240 plus a 4% commission on weekly sales. What is her pay for a week in which she sells $1492 worth of cosmetics?

 c her total holiday pay.

3. Madonna earns $10.27 per hour. How much will she earn for working 7 hours?

Tax rates 2007-08

Taxable income	Tax on this income
$1 – $6,000	Nil
$6,001 – $30,000	15c for each $1 over $6,000
$30,001 – $75,000	$3,600 plus 30c for each $1 over $30,000
$75,001 – $150,000	$17,100 plus 40c for each $1 over $75,000
$150,001 and over	$47,100 plus 45c for each $1 over $150,000

4. Kristine earns $13.10 per hour and receives $884.25 each fortnight.
 a How many hours does she work in a fortnight?
 b If she works 9 days per fortnight, how many hours does she work each day?

8. Use the tax rate table above to calculate the tax payable on a taxable income of:
 a) $4 950   b) $55 000

5. Justin earns $12.25 per hour.
 a How much will he earn for 8 hours work?
 b For how many hours must Justin work to earn over $800?

9. Jack has a gross income of $100 000 and has deductions of $5 500.
 i) Find his taxable income.

6. Sanjay works 37 hours at $10.57 per hour and 3 hours overtime at time-and-a-half. What is his total pay?

 ii) Calculate the amount of tax due.

 iii) Jack has paid $29000 in tax instalment. Will he get a refund or a bill?