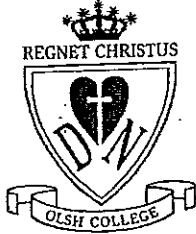


OUR LADY OF THE SACRED HEART COLLEGE  
KENSINGTON



STUDENT – NAME \_\_\_\_\_

MATHEMATICS TEACHER \_\_\_\_\_

2012

Year 8

Mathematics

Percentages and Algebra  
Assessment

Time allowed: 40 minutes  
Total marks: 38 marks

Assessed Outcomes

NS4.3  
PAS4.3

Percentage operations  
Uses the algebraic symbol system to simplify algebraic  
expressions

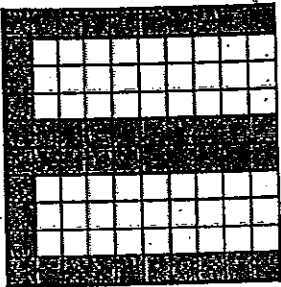
**Directions to Candidates**

- **Show all working** on the paper
- Calculators may be used
- Good Luck!!

MULTIPLE CHOICE (Circle the correct answer)

10 marks

1. What percent of squares are shaded?



- a) 10%                      b) 46%                      c) 50%                      d) 54%

1m

2. As a decimal, 30% can be written as:

- a) 0.3                      b) 0.03                      c) 3.0                      d) 0.003

1m

3.  $\frac{1}{5}$  as a percentage is:

- a) 5%                      b) 10%                      c) 20%                      d) 50%

1m

4. \$40 increased by 8% is:

- a) \$43.20                      b) \$48.00                      c) \$50.00                      d) \$38.00

1m

5. Simplify:  $a+a+2a+b+b+3b=$

- a)  $a^4 + b^5$                       b)  $a^2 + 2a + b^2 + 3b$                       c)  $4a + 5b$                       d)  $2a^3 3b^3$

1m

6. Simplify:  $a \times a \times 2a \times b \times b \times 3b =$

- a)  $4a \times 5b$                       b)  $2a^3 \times 3b^3$                       c)  $6a^3 b^3$                       d)  $9ab$

1m

7. Simplify:  $-3x + 8y - 5x - 6y =$

- a)  $8x + 14y$                       b)  $2x - 2y$                       c)  $8x - 2y$                       d)  $-8x + 2y$

1m

8. Complete the sentences below by choosing the correct words:

*Commission, like, unlike, discount, out of one hundred, coefficient*

3m

- The term PERCENT means \_\_\_\_\_
- In algebra, only \_\_\_\_\_ terms can be added or subtracted
- A \_\_\_\_\_ is a reduction in the price of an item.

**QUESTIONS**

Show all necessary working in the space provided.  
Marks will be allocated for working out.

**MARKS**

28

1. Express 24% as a fraction in simplest form

1m

2. Find 12% of \$950

1m

3. Simplify  $10p + 4p - 7p =$

1m

4. Simplify  $\frac{15b^2c}{5bc} =$

1m

5. Fill in the missing terms:

6m

a)  $6 \times \boxed{\phantom{000}} = -30c$

d)  $42k^2 \div \boxed{\phantom{000}} = 7k$

b)  $8pq \times \boxed{\phantom{000}} = 56p^2qr$

e)  $\boxed{\phantom{000}} \times 3xy = 21x^2yz$

c)  $3gh + \boxed{\phantom{000}} = 15gh$

f)  $\frac{\boxed{\phantom{000}}}{d} = 18d^2e$

6. Write the following in ascending order

5.6, 65%, 6.5%, 0.55, 0.055, 115%

2m

7. The school shot put record is 19m. If Erin threw a distance of 11.6m, what percentage of the record distance did she throw?

2m

8. The price of a television set was reduced from \$800 to \$700 as part of a discount sale. What was the percentage discount?

2m

9. \$2600 is to be split between 3 employees: Matt 20%, Bess 35% and Karen receives the rest. Find the amount:

3m

i) Matt will receive:

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ii) Karen will receive:

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10. Alan purchased a computer for \$3400 and later sold it for \$1000.

1m

a) How much money did Alan lose?

b) Calculate his loss as a percentage of the cost price, correct to 1 decimal place

1m

11. After spending 30% of his money on groceries, a man had \$49 left. How much did the groceries cost?

3m

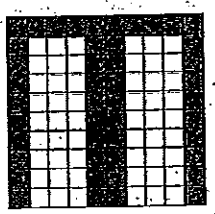
12. Simplify  $(-3m) \times (-2n) \times (-5m) \times \frac{1}{10}n =$

2m

13. Simplify  $96ef^2g \div 8efg^2 \div 3g =$

2m

1. What percent of squares are shaded?



- a) 10%      **b) 46%**      c) 50%      d) 54%

2. As a decimal, 30% can be written as:

- a) 0.3**      b) 0.03      c) 3.0      d) 0.003

3.  $\frac{1}{5}$  as a percentage is:

- a) 5%      b) 10%      **c) 20%**      d) 50%

4. \$40 increased by 8% is:

- a) \$43.20**      b) \$48.00      c) \$50.00      d) \$38.00

5. Simplify:  $a+a+2a+b+b+3b =$

- a)  $a^4 + b^5$       b)  $a^2 + 2a + b^2 + 3b$       **c)  $4a + 5b$**       d)  $2a^3 3b^3$

6. Simplify:  $a \times a \times 2a \times b \times b \times 3b =$

- a)  $4a \times 5b$       b)  $2a^3 \times 3b^3$       **c)  $6a^3 b^3$**       d)  $9ab$

7. Simplify:  $-3x+8y-5x-6y =$

- a)  $8x+14y$       b)  $2x-2y$       c)  $8x-2y$       **d)  $-8x+2y$**

1m

1m

1m

1m

1m

1m

1m

8. Complete the sentences below by choosing the correct words:

- Commission, like, unlike, discount, out-of-one-hundred, coefficient*
- The term PERCENT means out of one hundred.
  - In algebra, only like terms can be added or subtracted.
  - A DISCOUNT is a reduction in the price of an item.

3m

QUESTIONS

Show all necessary working in the space provided. Marks will be allocated for working out.

1. Express 24% as a fraction in simplest form

$\frac{24}{100} \div 2 = \frac{12}{50} \div 2 = \frac{6}{25}$

1m

2. Find 12% of \$950

$100 \times 950 = \$114$

1m

3. Simplify  $10p+4p-7p =$

$= 7p$

1m

4. Simplify  $\frac{3150^2 d}{180d} =$

$\frac{310}{1} = 310$

1m

5. Fill in the missing terms:

a)  $6 \times \boxed{-5c} = -30c$

d)  $42k^2 + \boxed{6k} = 7k$

b)  $8pq \times \boxed{7p} = 56p^2qr$

e)  $\boxed{7x^2} \times 3xy = 21x^2yz$

a)  $3gh + \boxed{12gn} = 15gh$

f)  $\frac{\boxed{18d^2}}{d} = 18d^2e$

6m

MARKS  
28

<p>6. Write the following in ascending order</p> <p><del>5.6, 65%, 0.55, 0.055, 115%</del></p> <p>0.55, 65%, 6.87, 0.55, 6.87, 115%</p>	<p>2m</p> <p>1</p>
<p>7. The school shot put record is 19m. If Erin threw a distance of 11.6m, what percentage of the record distance did she throw?</p> <p><del>11.6/19</del></p> <p><math>11.6/19 \times 100 = 61\%</math></p> <p>The percentage of the record is 61%.</p>	<p>2m</p> <p>1</p>
<p>8. The price of a television set was reduced from \$800 to \$700 as part of a discount sale. What was the percentage discount?</p> <p><math>\frac{100}{800} \times 100 = 12.5\%</math></p> <p><math>100 - 87.5 = 12.5\%</math></p> <p>The percentage discount was 12.5%.</p>	<p>2m</p> <p>1</p>
<p>9. \$2600 is to be split between 3 employees: Matt 20%, Bess 35% and Karen receives the rest. Find the amount:</p> <p>i) Matt will receive:</p> <p><math>20/100 \times 2600 = 520</math></p> <p>ii) Karen will receive:</p> <p><math>35/100 \times 2600 = 910</math></p> <p><math>2600 - 520 - 910 = 1170</math></p> <p>Matt receives \$520</p> <p>Karen receives \$1170</p>	<p>3m</p> <p>1</p>

<p>10. Alan purchased a computer for \$3400 and later sold it for \$1000.</p> <p>a) How much money did Alan lose?</p> <p><math>3400 - 1000 = 2400</math>, Alan lost \$2400.</p> <p>b) Calculate his loss as a percentage of the cost price, correct to 1 decimal place</p> <p><math>2400/3400 \times 100 = 70.6\%</math></p> <p>His loss percentage was 70.6%.</p>	<p>1m</p> <p>1</p>
<p>11. After spending 30% of his money on groceries, a man had \$49 left. How much did the groceries cost?</p> <p><math>100 - 30 = 70</math>, <math>70 = 49</math>, <math>70 \times 100 = 700</math></p> <p><math>70 - 49 = 21</math></p> <p>\$21 was spent on groceries.</p>	<p>3m</p> <p>1</p>
<p>12. Simplify <math>(-3m) \times (-2n) \times (-5m) \times \frac{1}{10}n = \frac{30m^2n}{10} \times \frac{1}{10}n = \frac{30m^2n}{100}</math></p> <p><math>30m^2n \times \frac{1}{10}n = 3m^2n</math> ← answer</p> <p>3m 2 2</p>	<p>2m</p> <p>1</p>
<p>13. Simplify <math>(96e^2g \div 8efg^2) \div 3g = \frac{96e^2g}{8efg^2} \div 3g = \frac{12e}{fg} \div 3g = \frac{4e}{fg} = 4f</math></p> <p>Answer</p>	<p>2m</p> <p>1</p>