OUR LADY OF THE SACRED HEART COLLEGE
KENSINGTON

STUDENT – NAME _____

MATHEMATICS TEACHER _____

2012

Year 8

Mathematics

Percentages and Algebra
Assessment

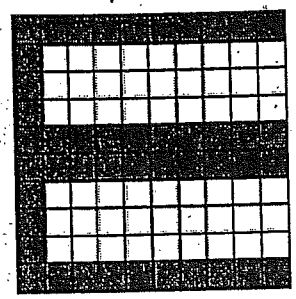
Time allowed: 40 minutes
Total marks: 38 marks

Assessed Outcomes

NS4.3	**Percentage operations**
PAS4.3	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)	10marks
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) $6a^3b^3$ 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: 3m

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

- 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: a) $6\times\square=-30c$ b) $8pq\times\square=56p^2qr$ c) $3gh+\square=15gh$ d) $42k^2\div\square=7k$ e) $\square\times 3xy=21x^2yz$ f) $\frac{\square}{d}==18d^2e$	6m

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:

ii) Karen will receive:

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

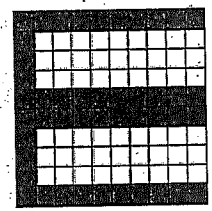
12. Simplify $(-3m)\times(-2n)\times(-5m)\times\frac{1}{10}n=$ — 2m

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

END OF PAPER ☺

MULTIPLE CHOICE (Circle the correct answer) — 10marks

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: — 1m

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

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

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

4. \$40 increased by 8% is: — 1m

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

5. Simplify: $a+a+2a+b+b+3b=$ — 1m

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

6. Simplify: $a\times a\times 2a\times b\times b\times 3b=$ — 1m

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

7. Simplify: $-3x+8y-5x-6y=$ — 1m

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

8. Complete the sentences below by choosing the correct words: — 3m

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.

QUESTIONS — MARKS 28

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

1. Express 24% as a fraction in simplest form — 1m

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

2. Find 12% of \$950 — 1m

$\frac{12}{100} \times 950 = \$114$

3. Simplify $10p+4p-7p=$ — 1m

$= 14p-7p$

$= 7p$

4. Simplify $\frac{3\cancel{15}b^2\cancel{¢}}{1\cancel{5}b\cancel{¢}} = \frac{3b}{1} = 3b$ — 1m

5. Fill in the missing terms: — 6m

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

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

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

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

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

f) $\frac{\boxed{18d^3e}}{d} = 18d^2e$

6. Write the following in ascending order

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

0.055, 5.6, 6.5%, 0.55, 65%, 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?

$\frac{11.6}{19} \times 100 = 61\%$

The percentage of the record is 61%

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?

$\frac{700}{800} \times 100 = 87.5$

$= 100 - 87.5$

$= 12.5\%$

The percentage discount was 12.5%

2m

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

i) Matt will receive:

$\frac{20}{100} \times 2600$

$= \$520$

Matt receives \$520

ii) Karen will receive:

$\frac{35}{100} \times 2600 = 910$

$= 910 + 520 = \$1430$

$= 2600 - 1430$

$= \$1170$

Karen receives \$1170

3m

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

a) How much money did Alan lose?

3400 - 1000 = \$2400, Alan lost \$2400.

1m

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

$\frac{2400}{3400} \times 100 = 70.6\%$

His loss percentage was 70.6%

1m

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

100 - 30 = 70%. \$49 : $\frac{49}{70} \times 100 = \$70$

70 - 49 = 21

\$21 was spent on groceries.

3m

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

$6mn \quad 30m^2n$

$\frac{30m^2n}{1} \times \frac{1}{10} n = \frac{30m^2n}{10}$

$\frac{30m^2n}{10} = \frac{3m^2}{1} = 3m^2$ ← answer

$3m^2n^2$

2m

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

$\frac{96ef^2g}{8efg^2} = \frac{12f}{g} \div \frac{3g}{1} = \frac{4fg}{g} = 4f$ ← answer

2m

END OF PAPER ☺