



Year 8 Mathematics

End Term 1

55 marks

40 mins

Date

Instructions: 1. Answer all questions 2. Calculators permitted

Sample 1

Question 1 (10 marks - 1 mark each)

a) Write each of the following in index form:

- i) $2 \times 2 \times 2$ ii) $d \times d \times d \times d \times d \times d$ iii) $10 \times 10 \times 10 \times 10 \times 10$

b) Simplify and write the following in index form:

- i) $3^2 \times 3^4$ ii) $j^2 \times j^5$ iii) $3^4 \div 3^3$ iv) $e^4 \div e^2$
v) $(4^2)^3$ vi) $(b^2)^3$ vii) $3^5 \times (3^2)^3$

Question 2 (16 marks - 1 mark each)

a) Copy each pair of numbers and place the correct $<$ or $>$ between them.

- i) 5 -1 ii) -3 3 iii) -4 -3

b) Arrange the integers in ascending order (smallest to largest):

- i) $2, -4, -2, 3$ ii) $4, -2, -4, 0$ iii) $-3, 1, -2, -1$

c) Calculate the following:

- i) $2 - 3$ ii) $-1 - 3$ iii) $4 - -5$ iv) 2×-6
v) -4×-1 vi) $14 \div -2$ vii) $-6 \div -2$ viii) $15 \div (-4 + 1)$

d) Andre owes each of four friends \$70. What is Andre's balance?

e) Mercury has a melting point of -40°C and a boiling point of 357°C . What is Mercury's temperature range from melting point to boiling point?

Question 3 (18 marks - 1 mark each)

a) Write an algebraic expression for each of the following:

- i) the sum of a and b . ii) h is decreased by $2x$.

b) Simplify the following expressions:

- i) $2a + 7a$ ii) $5b - 3b$ iii) $6c \div 3$ iv) $3 \times 3d$
v) $3h - 2h - 5h$ vi) $12p^3 \div 10p^2$ vii) $2(a + 3) - 5$ viii) $4(b - 2) + 3b + 1$

c) Expand each of the following expressions:

- i) $3(b + 5)$ ii) $3(2a - 6)$ iii) $-2(4y - 7)$ iv) $-6(3z - 2)$

d) Factorise each of the following expressions:

- i) $3d + 6$ ii) $5e - 15$ iii) $-3xy - 21$ iv) $-15g - 21g^2$

Question 4 (11 marks - 1 mark each)

a) A six-sided die is thrown. What is the probability of each of the following?

- i) 2? ii) even? iii) <3 ? iv) a number divisible by 2?

b) There are 500 tickets in a raffle raising money for the Junior basketball club. If you bought ten tickets, what are your chances of:

- i) winning the raffle? ii) not winning the raffle?

c) A bag contains ten red marbles, ten blue marbles, and five green marbles.

What is the probability that the first marble taken from the bag is:

- i) red? ii) not red? iii) not green?

d) Three books, A, B, and C are randomly placed on a shelf.

Find the probability that:

- i) A and B are together. ii) A and B are at each end.



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Instructions: 1. Answer all questions 2. Calculators permitted

Sample 2

Question 1 (10 marks - 1 mark each)

a) Write each of the following in index form:

i) $5 \times 5 \times 5 \times 5 \times 5$

ii) $a \times a \times a \times a$

iii) $10 \times 10 \times 10 \times 10 \times 10 \times 10$

b) Simplify and write the following in index form:

i) $2^2 \times 2^5$

ii) $n^3 \times n^5$

iii) $5^6 \div 5^3$

iv) $p^7 \div p^2$

v) $(4^2)^3$

vi) $(a^2)^3$

vii) $4^3 \times (4^2)^3$

Question 2 (16 marks - 1 mark each)

a) Copy each pair of numbers and place the correct $<$ or $>$ between them.

i) -4 2

ii) 1 -3

iii) -3 -5

b) Arrange the integers in ascending order (smallest to largest):

i) $6, -2, -1, -5$

ii) $-3, 4, -4, 0$

iii) $2, 1, -2, -1$

c) Calculate the following:

i) $4 - 7$

ii) $-2 - 4$

iii) $5 - -2$

iv) 3×-6

v) -6×-1

vi) $12 \div -3$

vii) $-8 \div -4$

viii) $16 \div (-5 + 1)$

d) The temperature at midnight was -4°C . If the temperature dropped a further 3°C , what is then the temperature?

e) The Egyptian civilisation began around 3100 BC and finished around 30 BC.

How long did the Egyptian civilisation last?

Question 3 (18 marks - 1 mark each)

a) Write an algebraic expression for each of the following:

i) the product of x and y . ii) b is increased by $6n$.

b) Simplify the following expressions:

i) $3x + 5x$

ii) $7a - 4a$

iii) $8d \div 2$

iv) $5 \times 2e$

v) $6x - 4x - 2x$

vi) $15a^4 \div 10a^2$

vii) $5(a + 2) - 3$

viii) $2(x - 2) + 3x + 2$

c) Expand each of the following expressions:

i) $4(a + 2)$

ii) $3(4x - 1)$

iii) $-3(2x - 4)$

iv) $-5(2y - 3)$

d) Factorise each of the following expressions:

i) $4x + 8$

ii) $6b - 15$

iii) $-4ab - 20$

iv) $-16g^2 - 12g$

Question 4 (11 marks - 1 mark each)

a) A six-sided die is thrown. What is the probability of each of the following?

i) $6?$

ii) odd?

iii) $>3?$

iv) a number divisible by 3?

b) There are 1000 tickets in a raffle raising money for the Junior basketball club. If you bought ten tickets, what are your chances of:

i) winning the raffle? ii) not winning the raffle?

c) A bag contains ten red marbles, five blue marbles, and five green marbles.

What is the probability that the first marble taken from the bag is:

i) red?

ii) not red?

iii) not green?

d) Three books, A, B, and C are randomly placed on a shelf.

Find the probability that:

i) A and B are together.

ii) A and B are not together.