S1 Mathematics Practice Paper 1 | directed numbers, equations, percentages, ratio, area and volume, statistics

Junior Secondary Mathematics

S1 Maths practice paper 1 with answers: directed numbers, algebra, linear equations, percentages, ratio and rate, area and volume, statistics and simple probability.

1. Directed numbers and algebra (16 marks)

Show working throughout and simplify all answers.

#	Question
1	(a) Evaluate (-18) + 7 - (-5) x 3.
2	(b) Evaluate (-2)^3 + 36 / (-4).
3	(c) Simplify 3a - 5b + 2a + 7b.
4	(d) If x = -3 and y = 4, find the value of 2x^2 - 3y + 5.

2. Linear equations in one unknown (18 marks)

Solve step by step and show all working.

#	Question
5	(a) Solve 5x - 7 = 3x + 9.
6	(b) Solve 4(x - 3) = 2x + 6.
7	(c) Solve x/3 + 2 = (x - 1)/2.
8	(d) A father is 42 years old and his son is 12. After how many years will the father be twice as old as the son?

3. Percentages: discount, profit and interest (16 marks)

Show working; give percentage answers as whole numbers.

#	Question
9	(a) A jacket marked at $480 is sold at a 20% discount. Find the selling price.
10	(b) In (a) the cost of the jacket is $320. Find the percentage profit.
11	(c) $5000 is deposited at 4% per year simple interest. Find the interest and the amount after 3 years.
12	(d) A number is increased by 25% to become 150. Find the number.

4. Ratio and rate (18 marks)

Show working and include units in rate answers.

#	Question
13	(a) Simplify the ratio 36 : 48.
14	(b) The numbers of stamps owned by A and B are in the ratio 3 : 5. If A has 24 stamps, how many does B have?
15	(c) A car travels at 72 km/h. Express this speed in m/s.
16	(d) A journey of 180 km: the first 120 km takes 1.5 hours and the rest is travelled at 40 km/h. Find the total time and the average speed for the whole journey.

5. Area and volume (16 marks)

Take pi as 3.142, give circle answers to 1 decimal place and other answers as whole numbers.

#	Question
17	(a) A rectangle is 12 cm long and 7 cm wide. Find its perimeter and area.
18	(b) A triangle has base 16 cm and height 9 cm. Find its area.
19	(c) A circle has radius 7 cm. Find its circumference and area (pi = 3.142, 1 decimal place).
20	(d) A rectangular tank is 50 cm by 40 cm by 30 cm. Find its capacity in litres; if 45 L of water is poured in, find the depth of water.

6. Statistics and simple probability (16 marks)

Daily reading time in minutes of 8 students: 20, 25, 25, 30, 35, 40, 40, 45. Show working throughout.

#	Question
21	(a) Find the mean and the range of the data.
22	(b) Find the median and the mode(s).
23	(c) One card is drawn at random from a pack of 52. Find the probability of a heart and of not a king (3 decimal places).
24	(d) A bag holds 4 red and 6 blue balls. Find P(red); if a ball is drawn 50 times with replacement, estimate the number of red draws.