પુ•ના International School
Shree Swaminarayan Gurukul, Zundal

Question Bank

Subject: Math

Grade: 7

Prepared by: Akash sir

CH: 8 Comparing Quantities

Q.1 MCQ

(1) The ratio of Rs 10 to 50 paise is
(a) 20 : 1 (b) 10 : 1 (c) 5 : 1 (d) 1 : 20

(2) The ratio of 6 kg to 400 g is
(a) 10 : 1 (b) 15 : 1 (c) 12 : 1 (d) 6 : 1

(3) The ratio of 3 m to 60 cm is
(a) 4 : 1 (b) 3 : 1 (c) 5 : 1 (d) 2 : 1

(4) The ratio of 15 days to 72 hours is
(a) 2 : 1 (b) 3 : 1 (c) 4 : 1 (d) 5 : 1

(5) The ages of father and son are 45 years and 10 years. The ratio of their ages is
(a) 3 : 2 (b) 5 : 2 (c) 9 : 2 (d) 15 : 2

CH:9 Rational Numbers

(1) The numerator of the rational number $\frac{3}{5}$ is
(a) 3 (b) 5 (c) 2 (d) 8

(2) The numerator of the rational number $\frac{1}{100}$ is
(a) 100 (b) 1 (c) 10 (d) 99

(3) The denominator of the rational number $\frac{-2}{-9}$ is
(a) -2 (b) 2 (c) 9 (d) -9

(4) The numerator of the rational number 0 is
(a) 0 (b) 1 (c) 2 (d) 3

(5) The numerator of a rational number 8 is
(a) 2 (b) 4 (c) 6 (d) 8

(6) The numerator of the rational number – 9 is
(a) -9 (b) 9 (c) 1 (d) -1

(7) The denominator of the rational number 0 is
(a) 0 (b) 1 (c) -1 (d) any non-zero integer

CH:11 Perimeter and Area

(1) Perimeter of a square =
(a) side × side (b) 3 × side (c) 4 × side (d) 2 × side

(2) Perimeter of a rectangle of length Z and breadth 6 is
(a) l + b (b) 2 × (l + b) (c) 3 × (l + b) (d) l × b

(3) Area of a square =
(a) side × side (b) 2 × side (c) 3 × side (d) 4 × side

(4) Area of a rectangle of length l and breadth b is
(a) l × b (b) l + b (c) 2 × (l + b) (d) 6 × (l + b)

(5) The area of a circle of radius r is
(a) πr^2 (b) $2\pi r^2$ (c) $2\pi r$ (d) $4\pi r^2$

CH:12 Algebraic Expressions

(1) What is the coefficient of x in the expression 1 + x + xz?
(a) z (b) 1 + z (c) 1 (d) 1 + x

(2) What is the coefficient of x in the expression 2 – x + y?
(a) 2 (b) 1 (c) -1 (d) None of these

(3) What is the coefficient of x in the expression $y^2x + y$?
(a) y^2 (b) y (c) 1 (d) 0

(4) What is the coefficient of x in the expression $2z - 3xz$?
(a) 3 (b) z (c) 3z (d) -3z

(5) What is the coefficient of x in the expression $1 + x + xz$?
(a) z (b) $1 + z$ (c) 1 (d) $1 + x$

(6) What is the coefficient of x in the expression $2x + xy^2$?
(a) $2 + y^2$ (b) 2 (c) y^2 (d) None of these

(7) What is the coefficient of y^2 in the expression $4 - xy^2$?
(a) 4 (b) x (c) -x (d) None of these

(8) What is the coefficient of y^2 in the expression $3y^2 + 4x$?
(a) 1 (b) 2 (c) 3 (d) 4

(9) What is the coefficient of y^2 in the expression $2x^2y - 10xy^2 + 5y^2$?
(a) $5 - 10x$ (b) 5 (c) -10 x (d) None of these

(10) What is the coefficient of x in the expression $ax^3 + bx^2 + d$?
(a) a (b) b (c) d (d) 0

CH:13 Exponents and Powers

(1) The exponential form of 10000 is
(a) 10^3 (b) 10^4 (c) 10^5 (d) none of these

(2) The exponential form of 100000 is
(a) 10^3 (b) 10^4 (c) 10^5 (d) none of these

(3) The exponential form of 81 is
(a) 3^4 (b) 3^3 (c) 3^2 (d) none of these

(4) The exponential form of 125 is
(a) 5^4 (b) 5^3 (c) 5^2 (d) none of these

(5) The exponential form of 32 is
(a) 2^3 (b) 2^4 (c) 2^5 (d) none of these

(6) The exponential form of 243 is
(a) 3^5 (b) 3^4 (c) 3^3 (d) 3^2

(7) The exponential form of 64 is
(a) 2^5 (b) 2^6 (c) 2^7 (d) 2^8

(8) The exponential form of 625 is
(a) 5^2 (b) 5^3 (c) 5^4 (d) 5^5

(9) The exponential form of 1000 is
(a) 10^1 (b) 10^2 (c) 10^3 (d) 10^4

(10) The value of $(-2)^3$ is
(a) 8 (b) -8 (c) 16 (d) -16

CH:14 Symmetry

(1) How many lines of symmetry are there in an equilateral triangle?
(a) 1 (b) 2 (c) 3 (d) 4

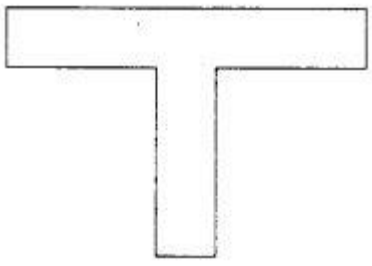
(2) How many lines of symmetry are there in a square?
(a) 1 (b) 2 (c) 3 (d) 4

(3) How many lines of symmetry are there in a rectangle?
(a) 1 (b) 2 (c) 3 (d) 4

(4) How many lines of symmetry are there in a regular pentagon?
(a) 1 (b) 2 (c) 3 (d) 5

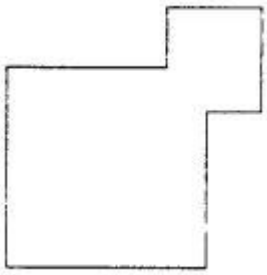
5) How many lines of symmetry are there in a regular hexagon?
(a) 2 (b) 4 (c) 6 (d) 3

(6) How many lines of symmetry are there in the following figure?



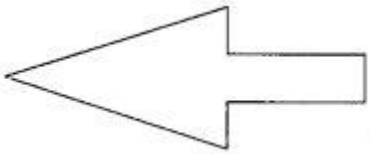
(a) 1 (b) 2 (c) 3 (d) 4

(7) How many lines of symmetry are there in the following figure?



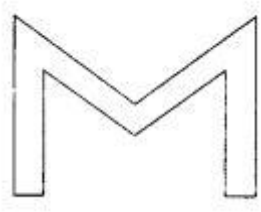
(a) 1 (b) 2 (c) 3 (d) 4

(8) How many lines of symmetry are there in the following figure?



(a) 1 (b) 2 (c) 3 (d) 4

(9) How many lines of symmetry are there in the following figure?



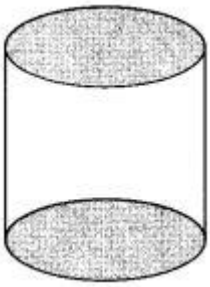
(a) 4 (b) 3 (c) 2 (d) 1

(10) How many lines of symmetry are there in the following figure?

(a) 2 (b) 1 (c) 4 (d) 3

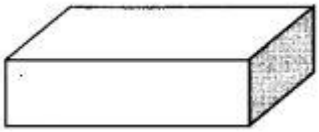
CH:15 Visualising Solid Shapes

(1)The name of the solid shape is



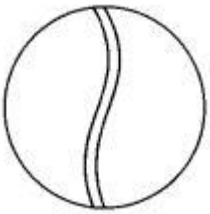
(a) cone (b) cylinder (c) sphere (d) cube

(2)The name of the solid shape is



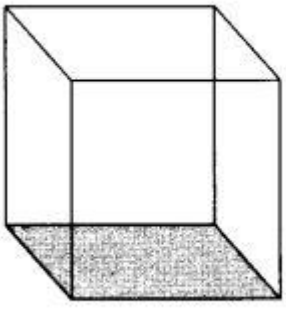
(a) cuboid (b) cube (c) pyramid (d) cone

(3) The name of the solid shape is



(a) cylinder (b) cone (c) sphere (d) cube

(4) The name of the solid shape is



(a) cube (b) cylinder (c) cone (d) sphere

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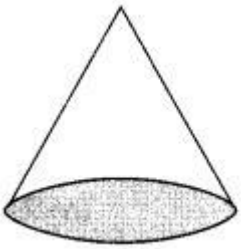
(5) The name of the solid shape is



(a) cylinder (b) cone (c) cuboid (d) sphere

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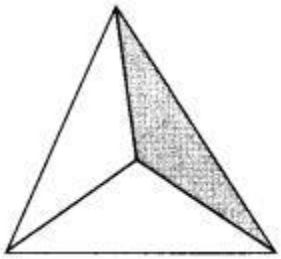
(6) The name of the solid shape is



(a) cylinder (b) cone (c) sphere (d) pyramid

(7) The number of vertices of a cube is

(a) 8 (b) 12 (c) 6 (d) 3

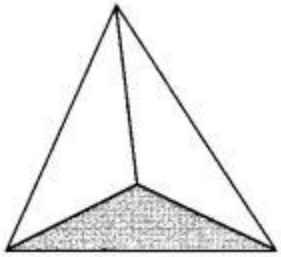
(8) The number of edges of a cube is

(a) 8 (b) 12 (c) 6 (d) 3

(9) The number of faces of a cube is

(a) 8 (b) 12 (c) 6 (d) 3

(10) The number of vertices of the solid shape is



(a) 1 (b) 2 (c) 3 (d) 4

Q:2 long question

CH:8

(1) Tell what is the profit or loss in the following transactions. Also find profit per cent or loss per cent in each case.

(a) Gardening shears bought for ₹ 250 and sold for ₹ 325.
(b) A refrigerator bought for ₹ 12,000 and sold at ₹ 13,500.
(c) A cupboard bought for ₹ 2,500 and sold at ₹ 3,000.
(d) A skirt bought for ₹ 250 and sold at ₹ 150

(2) Convert each part of the ratio to Percentage:
(a) 3:1 (b) 2:3:5 (c) 1: 4 (d) 1:2:5

(3) The population of a city decreased from 25,000 to 24,500. Find the Percentage decrease.

(4) Arun bought a car for ₹ 3,50,000. The next year, the price went upto ₹ 3,70,000. What was the Percentage of price increase?

(5) I buy a TV for ₹ 10,000 and sell it at a profit of 20%. How much money do I get for it?

(6) Juhi sells a washing machine for ₹ 13,500. She loses 20% in the bargain. What was the price at which she bought it?

(7) (i) Chalk contains calcium, carbon and oxygen in the ratio 10: 3: 12. Find the Percentage of carbon in chalk.
(ii) If in a stick of chalk, carbon is 3 g, what is the weight of the chalk stick?

(8) Amina buys a book for ₹ 275 and sells it at a loss of 15%. How much does she sell it for?

(9) Find the amount to be paid at the end of 3 years in each case.
(a) Principal = ₹ 1200 at 12% p.a.
(b) Principal = ₹ 7500 at 5% p.a.

(10) What rate gives ₹ 280 as interest on a sum of ₹ 56,000 in 2 years?

CH:9

(1) Find the sum:

(*i*) $\frac{5}{4}+\left(\frac{-11}{4}\right)$ (*ii*) $\frac{5}{3}+\frac{3}{5}$

(*iii*) $\frac{-9}{10}+\frac{22}{15}$ (*iv*) $\frac{-3}{-11}+\frac{5}{9}$

(*v*) $\frac{-8}{19}+\frac{(-2)}{57}$ (*vi*) $\frac{-2}{3}+0$

(*vii*) $-2\frac{1}{3}+4\frac{3}{5}$

(2) Find:

(*i*) $\frac{7}{24}-\frac{17}{36}$ (*ii*) $\frac{5}{63}-\left(-\frac{6}{21}\right)$

(*iii*) $\frac{-6}{13}-\left(-\frac{7}{15}\right)$ (*iv*) $\frac{-3}{8}-\frac{7}{11}$

(*v*) $-2\frac{1}{9}-6$

(3) Find the product:

(*i*) $\frac{9}{2}\times\left(\frac{-7}{4}\right)$ (*ii*) $\frac{3}{10}\times(-9)$

(*iii*) $\frac{-6}{5}\times\frac{9}{11}$ (*iv*) $\frac{3}{7}\times\left(\frac{-2}{5}\right)$

(*v*) $\frac{3}{11}\times\frac{2}{5}$ (*vi*) $\frac{3}{-5}\times\frac{-5}{3}$

(4) Find the value of:

(*i*) $(-4)\div\frac{2}{3}$ (*ii*) $\frac{-3}{5}\div 2$

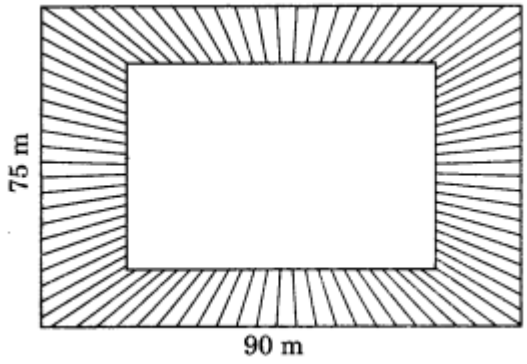
(*iii*) $\frac{-4}{5}\div(-3)$ (*iv*) $\frac{-1}{8}\div\frac{3}{4}$

(*v*) $\frac{-2}{13}\div\frac{1}{7}$ (*vi*) $\frac{-7}{12}\div\left(\frac{-2}{13}\right)$

(*vii*) $\frac{3}{13}\div\left(\frac{-4}{65}\right)$

CH:11

(1)A garden is 90 m long and 75 m broad. A path 5 m wide is to be built outside and around it. Find the area of the path. Also find the area of the garden in hectare.
Solution:



(2)A 3 m wide path runs outside and around a rectangular park of length 125 m and breadth 65 m. Find the area of the path.

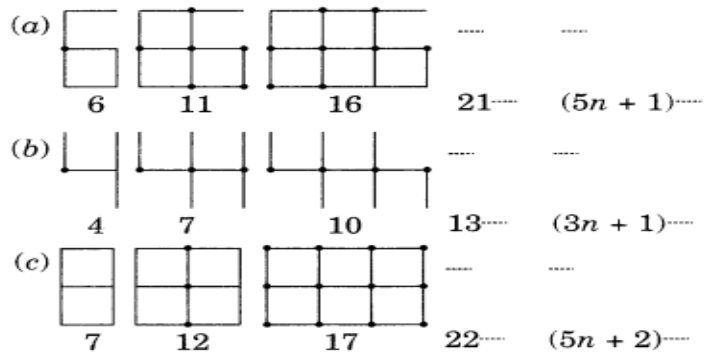
(3)A path 1 m wide is built along the border and inside a square garden of side 30 m. Find:
(i) the area of the path.
(ii) the cost of planting grass in the remaining portion of the garden at the rate of ₹ 40 per m^2.

(4) Two cross roads, each of width 10 m, cut a right angles through the centre of a rectangular park of length 700 m and breadth 300 m and parallel to its sides. Find the area of the roads. Also find the area of the park excluding cross roads. Give the answer in hectares.

(5) Through a rectangular field of length 90 m and breadth 60 m, two roads are constructed which are parallel to the sides and cut each other at right angles through the centre of the fields. If the width of each road is 3 m, find
(i) the area covered by the roads.
(ii) the cost of constructing the roads at of the rate of ₹ 110 per m^2.

CH:12

(1) Observe the patterns of digits made from line segments of equal length. You will find such segmented digits on the display of electronic watches or calculators.



If the number of digits formed is taken to be n, the number of segments required to form n digits is given by the algebraic expression appearing on the right of each pattern. How many segments are required to form 5, 10, 100 digits of the kind 6, 4, 3.

(2) If m = 2, find the value of:
(i) m – 2
(ii) 3m – 5
(iii) 9 – 5m
(iv) $3m^2 – 2m – 7$
(v) 5m2−4

(3) If p = -2, find the value of:
(i) 4p + 7
(ii) $-3p^2 + 4p + 7$
(iii) $-2p^3 – 3p^2 + 4p + 7$

(4) When a = 0, b = -1, find the value of the given expressions:
(i) 2a + 2b
(ii) $2a^2 + b^2 + 1$
(iii) $2a^2b + 2ab^2 + ab$
(iv) $a^2 + ab + 2$

(5) Simplify the expressions and find the value if x is equal to 2.
(i) x + 7 +4(x – 5)
(ii) 3(x + 2) + 5x – 7
(iii) 6x + 5(x – 2)
(iv) 4(2x – 1) + 3x + 11

CH:13

(1) Write the following numbers in the expanded forms:
279404, 3006194, 2806196, 120719, 20068

(2) Express the following numbers in standard form:
(i) 5,00,00,000
(ii) 70,00,000
(iii) 3,18,65,00,000
(iv) 3,90,878
(v) 39087.8
(vi) 3908.78

(3) Find the number from each of the following expanded forms:
(a) $8 \times 10^4 + 6 \times 10^3 + 0 \times 10^2 + 4 \times 10^1 + 5 \times 10^0$
(b) $4 \times 10^5 + 5 \times 10^3 + 3 \times 10^2 + 2 \times 10^0$
(c) $3 \times 10^4 + 7 \times 10^2 + 5 \times 10^0$
(d) $9 \times 10^5 + 2 \times 10^2 + 3 \times 10^1$

(4) Say true or false and justify your answer:
(i) $10 \times 10^{11} = 100^{11}$
(ii) $2^3 > 5^2$
(iii) $2^3 \times 3^2 = 6^5$
(iv) $3^{20} = (1000)^0$

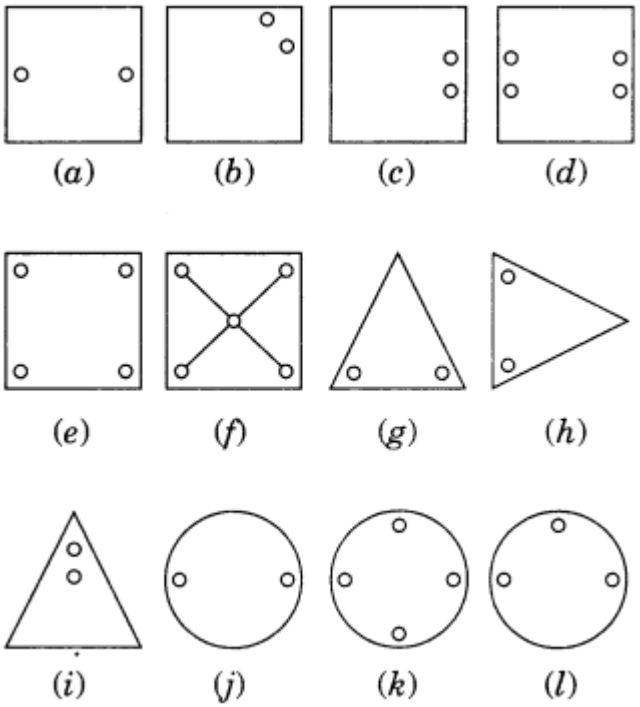
(5) Simplify:

$(i)\ \dfrac{(2^5)^2 \times 7^3}{8^3 \times 7}$ $(ii)\ \dfrac{25 \times 5^2 \times t^8}{10^3 \times t^4}$

$(iii)\ \dfrac{3^5 \times 10^5 \times 25}{5^7 \times 6^5}$

CH:14

(1) Copy the figures with punched holes and find the axis of symmetry for the following:



(2) Draw, wherever possible, a rough sketch of
(i) a triangle with both line and rotational symmetries of order more than 1.
(ii) a triangle with only line symmetry and no rotational symmetry of order more than
(iii) a quadrilateral with a rotational symmetry of order more than 1 but not a line symmetry.
(iv) a quadrilateral with line symmetry but not a rotational symmetry of order more than 1.

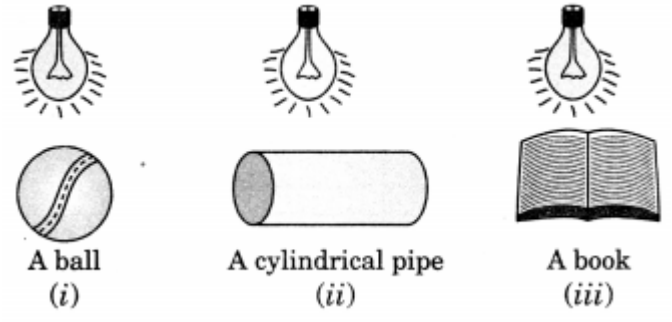
(3) Name the quadrilaterals which have both line and rotational symmetry of order more than 1.

(4) After rotating by 60° about a centre, a figure looks exactly the same as its original position. At what other angles will this happen for the figure?

(5) Can we have a rotational symmetry of order more than 1 whose angle of rotation is
(i) 45°?
(ii) 17°?

CH:15

(1) A bulb is kept burning just right above the following solids. Name the shape of the shadows obtained in each case. Attempt to give a rough sketch of the shadow. (You may try to experiment first and then answer these questions).



(2) Examine if the following are true statements:
(i) The cube can cast a shadow in the shape of a rectangle.
(ii) The cube can cast a shadow in the shape of a hexagon.

(3)Here are the shadows of some 3-D objects, when seen under the lamp of an overhead projector. Identify the solid(s) that match each shadow. (There may be multiple answers for these!)