



**Al Sharq Bright International School**  
**Model Paper for Final Exam 2017-2018**

**Name:** \_\_\_\_\_ **Subject:** Mathematics **Class:** 8 **Date:** \_\_\_\_\_

**Paper – 2**

**A. Choose the correct answer:**

- 1) If  $A = \{7, 3, 9, 1\}$ ,  $B = \{2, 8, 9\}$ ,  $\_\_\_\_ \in A \cap B$   
a) 7      b) 8      c) 9      d) 3
- 2) If  $x+10$  and  $2x$  are vertically opposite angles, then  $x = \_\_\_\_\_\_.$   
a) 10      b) 5      c) 20      d) 40
- 3)  $a^2(a + 1) = \_\_\_\_\_\_.$   
a)  $(a+1)$       b)  $(a^2 + 2)$       c)  $(a^3 + 1)$       d)  $(a^3 + a)$
- 4) If  $5 > x+3$ , then  
a)  $x + 3 \leq 5$   
b)  $x + 5 \geq 3$   
c)  $x < 2$   
d)  $x > 2$
- 5) The  $n(A)$  of  $A = \{x: -2 < x \leq 3\}$   
a) 5      b) 6      c) 4      d) 2

**B. Fill in the blanks:**

- 1)  $R = \{1, 3, 5, 7, 9, 11, \dots\}$  is a set of \_\_\_\_\_.
- 2)  $p^4 - q^4 = \_\_\_\_\_\_.$
- 3) If  $\frac{2x}{7} = 4$ ,  $x = \_\_\_\_\_\_.$
- 4) The area of a square is  $25m^2$ , the length of each side is 'x'. Then  $x = \_\_\_\_\_\_.$
- 5) The quadratic formula states that  $x = \_\_\_\_\_\_.$
- 6) If  $-4x \leq 8$ , then  $x \_\_\_\_\_\_ -2$

7)  $\frac{8x^2}{3} \div \frac{4x}{9} = \underline{\hspace{2cm}}$

8) The factors of  $(10x+ 15)$  are 5 and  $\underline{\hspace{2cm}}$ .

9) If P and Q are two sets ,  $Q \subseteq P$  implies that Q is a  $\underline{\hspace{2cm}}$  of P.

10) The compliment of a set A is represented by  $\underline{\hspace{2cm}}$ .

### **Paper – 4**

**C. Solve the following:**

1) Represent each of the following inequalities on a number line:

a)  $12 \leq 2(x-1) < 18$

b)  $6 < 2x \leq 10$

c)  $3 \leq 3x < 15$

2) Solve the following quadratic equations by factorizing:

a)  $x^2 - 4x = 12$

b)  $x^2 + 3x - 10 = 0$

c)  $4x^2 - 16x = 0$

3) In a class of 31 students, some study Physics and some study Chemistry. If 22 study Physics, 20 study Chemistry and 5 study neither, calculate the number of students who take both subjects? Use the Venn diagram to solve:

4) In the following questions, make the capital letter the subject:

a)  $3m - 5N = 8r$

b)  $\frac{x+y}{w} = m + n$

c)  $\frac{pq}{4R} = \frac{mn}{t}$

5) If  $P = \{\text{whole numbers less than } 30\}$

a) List the subset  $Q$  {even numbers}

b) List the subset  $S$  {prime numbers}

c) List the subset  $U$  {triangle numbers}

**D. Evaluate:**

1) Expand the following and simplify:

a)  $(x-4)(x+6)$

b)  $(x+3)(x+3)$

c)  $(p-5)(p-4)$

2) If  $A = \{2,3,5,8,9,11\}$ ,  $B = \{6,4,3,12,11\}$ ,  $C = \{5,7,9,3\}$ :

a) Draw the venn diagram to illustrate the above information.

b) Find:

a)  $A \cup B =$

ii)  $A \cap C =$

iii)  $A \cup B \cap C =$

iv)  $B \cap A =$

v)  $A \cup C' =$

vi)  $\xi =$

3) Evaluate the following if  $x=2$ ,  $y= -3$  and  $z=4$ :

a)  $2x+4y- 5z$

b)  $10x+ y^2 - z^2$

c)  $z^3 - y^2 - x^2$

4) Solve the following:

a) Add 3 to a number. If the result of multiplying this total with 7 is 63, find the number?

b) Double a number and then subtract 9. If the answer is 11, what is the number?

5) Solve the following simultaneous equations:

a)  $x + y = 7$

$$3x + 4y = 23$$

b)  $2x=3y- 19$

$3x+2y =17$

c)  $x-5y = -5$

$x-y =3$

**E. Solve:**

1) A triangle has a base length of  $(x-8)$  cm and a height of  $2x$  cm. If the area is  $20\text{cm}^2$ . Calculate the height and base length of the triangle?

2) The difference between two numbers is 7. If their sum is 25, find the two numbers by forming the two equations and solving them simultaneously?

3) Simplify the following complex algebraic fractions:

a)  $\frac{5}{p+3} - \frac{3}{p-5}$

b)  $\frac{x^2-2x}{x^2+x-6}$

4) If  $G = \{s, t, d, y\}$ , list all the subsets of  $G$ .

5) Solve the following quadratic equations using quadratic formula. Give your answer to 2 d.p:

a)  $x^2 - 4x - 11 = 0$



b)  $4x^2 + 2x - 5 = 0$

c)  $x^2 - 35 = 0$

d)  $-7x^2 - x = -15$

**Note: This is just a model, not the exam paper.**