

MASTERMIND ENGLISH MEDIUM SCHOOL

CLASS VIII (CAMBRIDGE)

**ADDITIONAL MATHEMATICS
(Arithmetic Progression)**

PRACTICE WORKSHEET – 01

(05.04.2020 – 09.04.2020)

Practice:

1. In each of the following A.P. find
 - a) the common difference, d
 - b) the 10th term
 - c) the *n*th term.
 - i) 1, 3, 5, 7, ...
 - ii) 20, 18, 16, 18, ...
 - iii) $-\frac{1}{8}, -\frac{1}{4}, -\frac{3}{8}, -\frac{1}{2}$
2. The fifth term of an arithmetic progression is 10 while the 15th term is 40. Write down the first 5 terms of the A. P.
3. Given that the 3rd term and 6th term of an A.P. are 13 and 22 respectively, find the sum of the first *n* terms in terms of *n*.
4. Find the sum of all odd numbers between 70 and 150.
5. The sum of four consecutive numbers in an A.P. is 28. The product of the second and third numbers exceeds that of the first and last by 18. Find the numbers.
6. The fourth term of an A.P. is 1 and the sum of the first 8 terms is 24. Find the sum of first three terms of the progression.
7. The sum of the first 8 terms of an A.P. is 56 and the sum of the first 20 terms is 260. Find the first term and common difference of the A.P.
8. Find the smallest number of terms of the A.P. 12, $13\frac{1}{2}$, 15, ... that must be taken for the sum to exceed 10,000.
9. The sum of the first *n* terms of the A.P. 13, $16\frac{1}{2}$, 20, ... is the same as the sum of the first *n* terms of the A.P. 3, 7, 11, Calculate the value of *n*.
10. In an arithmetic progression whose first term is -27, the tenth term is equal to the sum of the first 9 terms of the progression. Calculate the common difference.

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MASTERMIND ENGLISH MEDIUM SCHOOL

CLASS VIII (CAMBRIDGE) ADDITIONAL MATHEMATICS PRACTICE WORKSHEET – 02 (05.04.2020-09.04.2020)

1. For each of the following quadratic functions,

- (a) find the minimum or maximum value of y ,
- (b) the value of x at which this minimum or maximum occurs,
- (c) sketch the curve of each of the functions, showing clearly the coordinates of the minimum or maximum point and the point(s) at which the curve cuts the coordinate axes.

(i) $y = 2x^2 - 4x + 7$

(ii) $y = 3x^2 + 7x + 9$

(iii) $y = 4x^2 - 6x + 14$

(iv) $y = 2x^2 - 5x - 1$

(v) $y = -1 - 4x - x^2$

(vi) $y = 2x^2 + 4x + 17$

2. Find the range of values of x which satisfy the following inequalities:

(a) $(x + 2)(x - 3) \geq 0$

(b) $3x^2 < x^2 - x + 3$

(c) $(3x - 5)^2 \geq 2\frac{1}{4}$

(d) $(x - 2)(5x - 4) + 1 < 0$

(e) $2 - x - x^2 < 0$

(f) $x^2 \leq 100$

(g) $4(x + 1)(x - 4) + 25 \geq 0$

Answers

1. (i) (a) 5, (b) 1 (ii) (a) $4\frac{11}{12}$, (b) $-1\frac{1}{6}$ (iii) (a) $11\frac{3}{4}$ (b) $\frac{3}{4}$ (iv) (a) $-4\frac{1}{8}$ (b) $1\frac{1}{4}$
(v) (a) 3 (b) -2 (vi) (a) 15 (b) -1

2. (a) $x \geq 3$ or $x \leq -2$ (b) $-\frac{3}{2} < x < 1$ (c) $x \geq \frac{13}{6}$ or $x \leq \frac{7}{6}$ (d) $1 < x < \frac{9}{5}$
(e) $x > 1$ or $x < -2$ (f) $-10 \leq x \leq 10$ (g) all real values of x