EASY

1] $(x + 1)(x + 2) =$

2] $(2x – 5)(2x + 3) =$

3] $(3x^2 – 1)(x^2 – 3) =$

4] Solve the equation $x^2 + 5x + 6 = 0$

5] Differentiate $(x + 3)(x + 4)$

6] The simplest triple of 10, 24, 26 is ___.

7] What is the distance between the points A(3,1) and B(7,4)
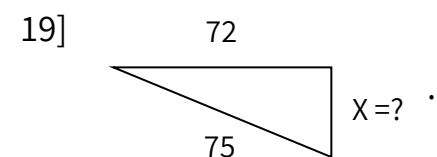
For numbers 8 to 10 factorize the following:

8] $x^2 + 7x + 12 =$

9] $2x^2 – 5x – 3 =$

10] $4x^2 – 12x + 9 =$

11] The sum of 5 consecutive multiples of 3 is 180. Find the numbers.

12] $95^2 =$

13] Is a triangle with sides 6, 8, 9 a right – angled triangle? YES or NO.

14] $47^2 =$

15] Find the gradient(slope) of the line joining: (3, 7) and (15, 11)

16] $53^2 =$

17] Find the discriminant of $5x^2 – 6x + 1$.

18] How far is the point (24, 7) from the origin?

19]

20] What is the y -intercept of the line $y = 3x + 3$?

AVERAGE

1] Factorize $(5y^2 – 42y – 27)$.

2] Differentiate $x^4 – 5x^3 – 3x^2 + 2x – 15$.

3] Add the triples:

$$\begin{array}{ccc} 8 & 15 & 17 \\ 4 & 3 & 5 \end{array}$$

4] Is the point (4, 5) on the line $y = (x + 4)/2 + 1$?

5] Find the coordinates of the point of intersection given $y = 5 – x$ and $y = x – 9$.

6] What is the point midway between (2, 12) and (3, 9)

7] The code number for the triple 483, 44, 485 is _____.

8] Find the point of intersection of the lines $2x + y = 7$ and $x – 2y = -9$.

9] $554{,}555 \times 999 =$

10] $5555^2 – 4444^2 =$

DIFFICULT

For numbers 1 and 2, given angle A) 3,4,5 find triples for:

1] 2A

2] A/2

3] Factorize completely: $x^3 + 8x^2 + 19x + 12$.

4] $99 \times 99 \times 99 + 3 \times 99 \times 99 + 3 \times 99 =$

5] Find the equation of the line which passes through (7,3) and (2,1)

6] Given the points (17,12),(10,7) and (x, 2) lie in a straight line. Find the value of x.

7] Find the point of intersection of the lines $2x + y = 7$ and $x – 2y = -9$.

8] Find the 4th term of $(4x^4 – 5x^3 + 2x^2 – x + 3)^2$

9] Find the equation of the line perpendicular to the line $3x + 5y = 17$ that passes through the point (2, 1).

10] Count the number of squares in this illustration.
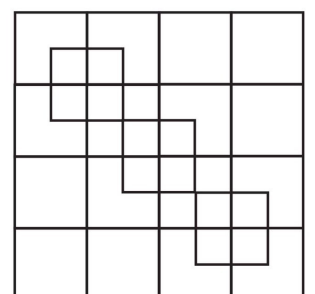
Answers to HS II – Grades 9 & 10

EASY (2 Pts each)

1) $x^2 + 3x + 2$
2) $4x^2 - 4x - 15$
3) $3x^4 - 10x + 3$
4) $X = -2$ or -3
5) $2x + 7$
6) 5, 12, 13
7) 5
8) $(x + 3)(x + 4)$
9) $(2x + 1)(x-3)$
10) $(2x - 3)(2x - 3)$
11) 30, 33, 36, 39, 42
12) 9025
13) No
14) 2209
15) 1/3
16) 2809
17) 16
18) 25
19) 21
20) 3

Average Questions (3 – pts)

1) $(5y + 3)(y - 9)$
2) $4x^3 - 15x^2 - 6x + 2$
3) $- 13, 84, 85$
4) Yes
5) (7, -2)
6) (2.5, 10.5)
7) 22
8) (1, 5)
9) 554,000,445
10) 11,108,889

Difficult questions (4 points each)

1) -7, 24, 25
2) 2, 1, √5
3) $(x + 1)(x + 3)(x + 4)$
4) 999,999
5) $Y = 2/5x + 1/5$
6) $X = 3$,
7) (1, 5)
8) $-28x^5$
9) $5x - 3y = 7$
10) 51