BASIC EQUATIONS - SOLVED EXAMPLES

Q 1 - If 8x+5y = 9 and 3x+2y= 4, what is y?

A - 5

B - 6

C - 7

D - 8

Answer - A

Explanation

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The given equations are:
8x+5y = 9 ...(a)
3x+2y = 4 ...(b)
On multiplying (a) by 2, (b) by 5 and subtracting, we get: x= −2
Putting x = −2 in (b), we get:
−6 + 2y = 4 => 2y = 10 ∴ y = 5
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Q 2 - If 5/x+ 6y =13 and 3/x+4 = 7, Find the value of y.

A - 0

B - -1

C - -2

D - -3

Answer - C

Explanation

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The given equation is:
5/x +6y = 13 ...(a)
3/x+4y =7 ...(b)
On multiplying (a) by 3, (b) by 5 and subtracting, we get:
−2y = 4 ∴ y = −2
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Q 3 - Given (x+y-8)/2 = (x+2y-14)/3 = (3x+y-12)/11. Then x,y are

A - 1,7

B - 2,7

C - 2,6

D - 1,5

Answer - D

Explanation

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Taking first two parts, we get:
(x+y-8)/2 = (x+2y-14)/3
=> 3 (x+y-8) = 2(x+ 2y-14)
=> 3x+3y-24 =   2x+4y -28
=> x- y= -4 ...(1)
Taking last two parts, we get:
(x+2y-14)/3 = (3x+y-12)/11
=> 11 (x+2y-14) = 3(3x+y-12)
=> 11x+ 22y - 154 = 9x+3y -36
=> 2x+19y- 118 ...(2)
Multiplying (1) by 2 and subtracting from (2) we get,
21 y = 126
=> y = 6
Putting y = 6 in (1), we get: x= 2
=> x= 2, y= 6
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Q 4 - Given 217x +131y= 913 and 131 x+ 217 y= 827. Then x,y are

A - 1,6

B - 3,2

C - 12,13

D - 16,18

Answer - B

Explanation

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217x +131y= 913  ...(a)
131 x+ 217 y= 827 ...(b)

It is a special case in which coefficients of x and y in (a) are interchanged in
(b)
Adding (a) and (b) , we get : 348(x+y)= 1740 => x+y = 5 ...(a)
Subtracting (b) from (a), we get: 86(x-y) = 86 => x-y =1 ...(b)
Adding (a) and (b), we get: x= 3, y= 2
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Q 5 - For what value of h, the system of equations,hx-y-2=0 and 6x-2y-3=0 has a unique solution?

A - 2

B - 3

C - 4

D - 5

Answer - B

Explanation

For, a unique solution, we must have $a_1/a \neq b_1/b_2$

$h/6 \neq -1/-2 \Rightarrow h/6 \neq 1/2 \Rightarrow h = 3$

Q 6 - For what value of h, the system of equations, x+2y+7 = 0 and 2x+hy+14= 0 have an infinite number of solutions?

A - 3

B - 4

C - 5

D - 6

Answer - B

Explanation

For infinite solutions, we have $a_1/a_2 = b_1/b_2 = c_1/c_2$;
h1/2 = 2/h = 7/14 => h=4.

Q 7 - For what value of h, the system of equations, hx-10y-3= 0 and 3x-5y-7=0 has no solutions?

A - 6

B - 5

C - 4

D - 3

Answer - A

Explanation

For no solution, we have $a_1/a_2 = b_1/b_2 \neq c_1/c_1$
$\therefore$ h/3 = −10/−5 ≠−3/−7 => h = 6
