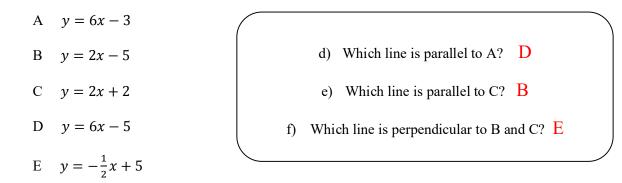
Name: _____ANSWERS___

Perpendicular Lines

1. From the following set of equations, which pairs would you expect to be perpendicular?

A: $y = 2x + 6$	B: $y = \frac{2}{3}x + 3$	C: $y = -\frac{1}{2}x + 1$
D: $y = \frac{1}{2}x + 5$	E: $y = -2x + 4$	F: $y = -\frac{1}{2}x + 2$
	A and F	
	A and C	
	D and E	

2. The equations of 5 lines are listed below:



- 3. Write down the equations of 2 lines which are parallel to y = -4x + 32 lines where y = -4x + ceg y = -4x - 2 and y = -4x + 1
- 4. Write down the equations of 2 lines which are perpendicular to y = 3x + 2 lines where $y = -\frac{1}{3}x + c$ eg $y = -\frac{1}{3}x + 3$ and $y = -\frac{1}{3}x - 2$
- 5. Determine whether the following pairs of lines are perpendicular or not. You will need to rearrange some of the equations first so they are in the form y = mx + c.

	Line A	Line B	Perpendicular?
1	y = -4x + 3	4y + x = -1	Ν
2	$y = -\frac{2}{3}x + 4$	3x + 2y = 1	Ν
3	2x - 5y = -3	5x + 2y = 6	Y
4	x - 3y = 9	8y + 24x = 16	Y
5	x + y = 6	4y - 4x = 12	Y
6	y = -x + 8	x-y = -1	Y

6. Find equation of the line through (10, 3 which is perpendicular to the line y = -5x + ...

$$y = \frac{x}{5} + 1$$

7. Find equation of the line through (8, 5) which is perpendicular to the line $y = \frac{1}{4}x + 1$.

$$y = -4x + 37$$

8. Find equation of the line through (4, 10) which is perpendicular to the line $y = -\frac{2}{3}x + 2$.

$$y = \frac{3x}{2} + 4$$

9. Find equation of the line through (8, -2) which is perpendicular to the line 4x - 2y = 6.

$$y = -\frac{x}{2} + 2$$

10. Find equation of the line through (-2, -3) which is perpendicular to the line 2y + 4x = 8.

$$y = \frac{x}{2} - 2$$

Extension

C. Find the equation of the line which passes through the intersection point of the lines y = x + 3 and y = 11 - 3x and is parallel to x + y = 2

Intersection: (2,5)

Line: y = -x + 7

D. Find the equation of the perpendicular bisector of the line joining the points (4,3) and (8,11)

Midpoint: (6,7) Gradient of line joining (4,3) and $(8,11) = \frac{11-}{8-4} = \frac{8}{4} = 2$

Equation of perpendicular bisector: $y = -\frac{x}{2} + 10$