**Parallel and Perpendicular Equations of Straight Line Graphs GREEN**

Calculate the equations for the graphs described below.

1) Parallel to $y=3x-18$ and goes through $(3,2)$.

2) Parallel to $y=5x+10$ and goes through $(4, 10)$.

3) Parallel to $y=2x+5$ and goes through $(1, 18)$.

4) Parallel to $y=4-2x$ and goes through $(3, 1)$.

5) Parallel to $y=-3x+5$ and goes through $(-6, 3)$.

Calculate the equations for the graphs described below.

6) Perpendicular to $y=2x+4$ at $(2, 8)$.

7) Perpendicular to $y=4x+5$ at $(4, 16)$.

8) Perpendicular to $y=-\frac{1}{2}x+4$ at $(2, 3)$.

9) Perpendicular to $y=-\frac{3}{2}x+4$ at $(6, -2)$.

10) Perpendicular to $y=\frac{1}{2}x+3$ at $(3, 6)$.

**Parallel and Perpendicular Equations of Straight Line Graphs AMBER**

Calculate the equations for the graphs described below.

Parallel graphs have the same gradient. Use the given coordinate to substitute into $y=mx+c$ to calculate the $y$-intercept.

1) Parallel to $y=3x-18$ and goes through $(3,2)$.

 $y=3x+c$

2) Parallel to $y=5x+10$ and goes through $(4, 10)$.

3) Parallel to $y=2x+5$ and goes through $(1, 18)$.

4) Parallel to $y=4-2x$ and goes through $(3, 1)$.

5) Parallel to $y=-3x+5$ and goes through $(-6, 3)$.

Calculate the equations for the graphs described below.

Gradients of perpendicular graphs have a product of $-1$. Use the given coordinate to substitute into $y=mx+c$ to calculate the $y$-intercept.

6) Perpendicular to $y=2x+4$ at $(2, 8)$.

 $-1÷2=-\frac{1}{2}$ $y=-\frac{1}{2}x+c$

7) Perpendicular to $y=4x+5$ at $(4, 16)$.

8) Perpendicular to $y=-\frac{1}{2}x+4$ at $(2, 3)$.

9) Perpendicular to $y=-\frac{3}{2}x+4$ at $(6, -2)$.

10) Perpendicular to $y=\frac{1}{2}x+3$ at $(3, 6)$.

**Parallel and Perpendicular Equations of Straight Line Graphs RED**

Calculate the equations for the graphs described below.

Parallel graphs have the same gradient. Use the given coordinate to substitute into $y=mx+c$ to calculate the $y$-intercept.

1) Parallel to $y=3x-18$ and goes through $(3, 2)$.

 $y=3x+c$

Rearrange to calculate c.

 $2=3\left(3\right)+c$

2) Parallel to $y=5x+10$ and goes through $(4, 10)$.

 $y=5x+c$

3) Parallel to $y=2x+5$ and goes through $(1, 18)$.

4) Parallel to $y=4-2x$ and goes through $(3, 1)$.

5) Parallel to $y=-3x+5$ and goes through $(-6, 3)$.

Calculate the equations for the graphs described below.

Gradients of perpendicular graphs have a product of $-1$. Use the given coordinate to substitute into $y=mx+c$ to calculate the $y$-intercept.

6) Perpendicular to $y=2x+4$ at $(2, 8)$.

 $-1÷2=-\frac{1}{2}$ $y=-\frac{1}{2}x+c$

Rearrange to calculate c.

 $8=-\frac{1}{2}\left(2\right)+c$

7) Perpendicular to $y=4x+5$ at $(4, 16)$.

 $-1÷4=-\frac{1}{4}$ $y=-\frac{1}{4}x+c$

8) Perpendicular to $y=-\frac{1}{2}x+4$ at $(2, 3)$.

9) Perpendicular to $y=-\frac{3}{2}x+4$ at $(6, -2)$.

10) Perpendicular to $y=\frac{1}{2}x+3$ at $(3, 6)$.