

Formulas

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| Straight Line | $y=mx+c$ |
| Equation of parallel line OR Point of intersection | $y-y^1=m(x-x^1)$ |
| Midpoint | $(\frac{x^1+x^2}{2}, \frac{y^1+y^2}{2})$ |
| Distance Formula | $\sqrt{(x^2-x^1)^2+(y^2-y^1)^2}$ |
| Gradient of parallel line | $m^1=m^2$ |
| Gradient of perpendicular line | $m^1m^2=-1$ OR $m^2=-1/m^1$ & $-m^2=1/m^1$ |
| Gradient | $m=\text{rise/run}$ OR $m=(y^2-y^1)/(x^2-x^1)$ |

Solving Stuff

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| Finding a rule for a graph | For: (x^1, y^1) & (x^2, y^2) ⚡ Find gradient ⚡ Sub into $y^1=m(x-x^1)$ |
| Finding equation of parallel line | ⚡ Arrange into $y=mx+c$ ⚡ Find values of x, y, m ⚡ Sub into $y-y=m(x-x)$ ⚡ Solve |
| Finding equation of perpendicular line | ⚡ Find negative reciprocal of m ⚡ Substitute (x, y) into $y=mx+c$ ⚡ Solve for c |
| Finding point of intersection | ⚡ Arrange one of the lines into $y=mx+c$ or $x=$ ⚡ Sub this into the other line ⚡ Solve for other coordinate |
| Shading Half Planes | >above <below |
| Horizontal Line | $y=b$ |
| Vertical Line | $x=a$ |
| Forming Simultaneous Equations | ⚡ Define unknowns using pronumerals. ⚡ Form two equations from the information in the problem. ⚡ Solve simultaneously. ⚡ Answer the question in words. |

Solving Stuff (cont)

Solving Simultaneous equations: Solve two equations in two pronumerals using: ⚡ substitution when one pronumeral is the subject; e.g. $y = x + 4$. ⚡ elimination when adding or subtracting multiples of equations eliminates one variable.

If asking for 'through (x, y) perpendicular to $x=a$, answer $y=b$ e.g. perp. to $x=7$ through $(0, 3) = y=3$

