Cheatography

# Linear Relationships Cheat Sheet

by maxine3 via cheatography.com/29360/cs/8614/

## Formulas

| | |
|---|---|
| Straight Line | $y=mx+c$ |
| Equation of parallel line OR Point of intersection | $y-y^1=m(x-x^1)$ |
| Midpoint | $([x^1+x^2/2],[y^1+y^2/2])$ |
| 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 | $m=rise/run$ OR $m=(y^2-y^1)/(x^2-x^1)$ |

## Solving Stuff

| | |
|---|---|
| Finding a rule for a graph | For: $(x^1,y^1)$ & $(x^2,y^2)$ ↯ Find gradient ↯ Sub into $y-y^1=m(x-x^1)$ |
| 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 | 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. tp x=7 through (0,3) = y=3

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