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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