Single Pure – Perpendicular Bisector

1. Find the equation of the perpendicular bisector of the following points in the form $y = mx + c$.

   (a) $(-1, 2)$ and $(3, 6)$. $\boxed{y = -x + 5}$

   (b) $(0, 1)$ and $(2, 5)$. $\boxed{y = -\frac{1}{2}x + \frac{7}{2}}$

   (c) $(4, 5)$ and $(1, -1)$. $\boxed{y = -\frac{1}{2}x + \frac{13}{4}}$

   (d) $(-2, 1)$ and $(7, 2)$. $\boxed{y = -9x + 24}$

   (e) $(-1, 3)$ and $(-1, 4)$. $\boxed{y = \frac{7}{2}}$

   (f) $(\frac{1}{2}, -1)$ and $(2, \frac{2}{3})$. $\boxed{y = -\frac{9}{10}x + \frac{23}{24}}$

   (g) $(2, p)$ and $(4, 0)$. $\boxed{y = \frac{2}{p}x + \frac{p^2-12}{2p}}$

2. Find the equation of the perpendicular bisector of the following points in the form $0 = ax + by + c$, where a, b and c are integers.

   (a) $(-1, 3)$ and $(2,5)$. $\square$

3. Find the intersection of the **perpendicular bisectors** of the following pairs of points.

   (a) $\boxed{(1, 1)\ \&\ (-1, -1)}$ and $\boxed{(-1, 1)\ \&\ (1, -1)}$. $\boxed{(0, 0)}$

   (b) $\boxed{(3, 1)\ \&\ (-1, -1)}$ and $\boxed{(2, 1)\ \&\ (2, 0)}$. $\boxed{(\frac{3}{4}, \frac{1}{2})}$

   (c) $\boxed{(1, 2)\ \&\ (1, 0)}$ and $\boxed{(3, 0)\ \&\ (0, 1)}$. $\boxed{(\frac{5}{3}, 1)}$

   (d) $\boxed{(-1, -1)\ \&\ (1, 2)}$ and $\boxed{(3, 0)\ \&\ (2, 1)}$. $\boxed{(\frac{3}{2}, -\frac{1}{2})}$

   (e) $\boxed{(-1, 3)\ \&\ (0, 1)}$ and $\boxed{(1, 4)\ \&\ (5, 2)}$. $\boxed{(\frac{7}{2}, 4)}$

   (f) $\boxed{(-1, 3)\ \&\ (1, 1)}$ and $\boxed{(1, 2)\ \&\ (5, 3)}$. $\boxed{(\frac{5}{2}, \frac{9}{2})}$

   (g) $\boxed{(-1, 0)\ \&\ (-1, 2)}$ and $\boxed{(0, 4)\ \&\ (5, 2)}$. $\boxed{(\frac{17}{10}, 1)}$

   (h) $\boxed{(0, \frac{1}{2})\ \&\ (-1, -1)}$ and $\boxed{(3, 0)\ \&\ (2, 1)}$. $\boxed{(\frac{17}{20}, -\frac{23}{20})}$

   (i) $\boxed{(\frac{2}{3}, -\frac{1}{4})\ \&\ (0, \frac{3}{2})}$ and $\boxed{(-\frac{4}{3}, -2)\ \&\ (\frac{1}{2}, -\frac{1}{3})}$. $\boxed{(-\frac{2675}{1866}, -\frac{359}{7464})}$

   (j) $\boxed{(0, a)\ \&\ (\frac{a}{2}, 1)}$ and $\boxed{(\frac{1}{2}, a)\ \&\ (1, -\frac{a}{3})}$. $\boxed{\frac{32a^3-68a^2-27a+75}{12(a+3)}}$