

5th Lent Revision

- Find equation of line through $(1, \frac{2}{3})$ and $(-\frac{1}{2}, -2)$.
 - Find perpendicular bisector of $(1,3)$ and $(3,4)$.
 - Find the intersection of the previous two lines.
- Find the intersections of the lines $x + 2y = 1$ and $ax + y = 1$. [Simplifying your answer fully.]
- A quadratic curve passes through $(0,7)$, $(3,0)$ and $(\frac{1}{2},0)$. Find its equation in the form $y = ax^2 + bx + c$.
- A bag contains 6 yellow counters and 5 green counters. I take three counters at once. Find the probability I have more greens than yellows.
- In the morning I wake up with a hangover with probability $\frac{1}{3}$. If I have a hangover I will teach badly with probability $\frac{7}{8}$. If I don't have a hangover I will teach badly with probability $\frac{1}{5}$. Today I taught well; what is the probability I was hungover in the morning?
- Rationalise the denominator and simplify:
 - $\frac{8}{\sqrt{2}}$.
 - $\frac{1+\sqrt{2}}{\sqrt{3}-2}$.