Name: _____ 5-a-day Higher Plus

2nd March

Corbettmaths

Make m the subject

$$\frac{3m+2}{c} = \frac{m+1}{a}$$

$a(3m+2) = c(m+1)$

$3am + 2a = cm + c$

$3am - cm = c - 2a$

$m(3a - c) = c - 2a$

$m = \frac{c-2a}{3a-c}$

The time taken, t, for the passengers to be checked-in for a flight is inversely proportional to the square of the number of staff, s, working.
It takes 30 minutes for passengers to be checked-in when 10 staff are working.

$t \propto \frac{1}{s^2}$

Find an equation connecting t and s.

$t = \frac{k}{s^2}$

$30 = \frac{k}{10^2}$

$k = 3000$

$t = \frac{3000}{s^2}$

Solve $x^2 + 6x + 3 = 0$ giving your answers in surd form.

$(x+3)^2 - 3^2 + 3 = 0$

$(x+3)^2 - 9 + 3 = 0$

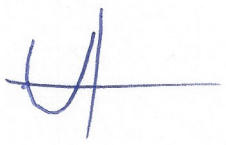
$(x+3)^2 - 6 = 0$

$(x+3)^2 = 6$

$x + 3 = \pm\sqrt{6}$

$x = -3 + \sqrt{6}$ or $x = -3 - \sqrt{6}$

Solve the inequality $x^2 + 6x + 3 < 0$



$-3 - \sqrt{6} < x < -3 + \sqrt{6}$

There are 12 counters in a bag.
8 are green
3 are white
1 is red

$P(RR) = 0$

Conor takes two counters at random from the bag. Work out the probability that Conor takes two counters of different colours.

$1 - P(\text{same})$

$P(GG) = \frac{8}{12} \times \frac{7}{11} = \frac{14}{33}$

$P(WW) = \frac{3}{12} \times \frac{2}{11} = \frac{1}{22}$

$\frac{14}{33} + \frac{1}{22} = \frac{31}{66}$

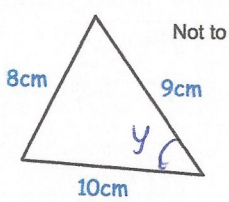
$1 - \frac{31}{66} = \frac{35}{66}$

Find the area of the triangle.

$\cos y = \frac{10^2 + 9^2 - 8^2}{2 \times 10 \times 9}$

$\cos y = \frac{13}{20}$

$y = 49.4584^\circ$



$A = \frac{1}{2} \times 10 \times 9 \times \sin(49.4584)$

$A = 34.197\text{cm}^2$