Name: _____ 5-a-day Higher Plus

6th September

Corbettmaths

A bag contains 4 red, 5 black and 2 white discs.
A disc is taken, at random, from the bag and not replaced.
A second disc is then taken, at random, from the bag.

$P(RR) = \frac{4}{11} \times \frac{3}{10} = \frac{12}{110}$

1 - P(same)

Calculate the probability that the discs are different colours.

$P(BB) = \frac{5}{11} \times \frac{4}{10} = \frac{20}{110}$

$P(WW) = \frac{2}{11} \times \frac{1}{10} = \frac{2}{110}$

$1 - \left(\frac{34}{110}\right) = \frac{38}{55}$

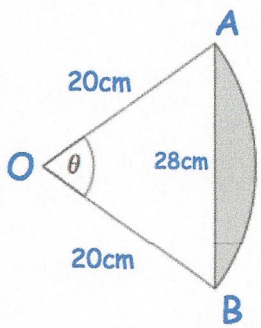
Write as a single fraction and simplify if possible

$$\frac{x^3 - x}{x + 2} \div \frac{x^2 - x}{x^2 - 5x - 14}$$

$\frac{x(x^2-1)}{x+2} \times \frac{(x+2)(x-7)}{x(x-1)}$

$\frac{x(x+1)(x-1)}{x+2} \times \frac{(x+2)(x-7)}{x(x-1)}$

$(x+1)(x-7)$



The diagram shows a triangle OAB and the arc AB of a circle whose centre is O and whose radius is 20cm.

$\frac{88.854}{360} \times \pi \times 20^2 = 310.1589707$

Find the size of the angle θ.

$\cos\theta = \frac{20^2 + 20^2 - 28^2}{2 \times 20 \times 20}$

$\theta = 88.854°$

Find the area of the shaded segment to the nearest cm².

$\frac{1}{2} \times 20 \times 20 \times \sin 88.854 = 199.96$

$310.159 - 199.96 = 110.199 cm^2$

Write in the form $a(x + b)^2 + c$

$3x^2 - 12x + 2$

$3(x^2 - 4x) + 2$

$3[(x-2)^2 - 4] + 2$

$3(x-2)^2 - 12 + 2$

$3(x-2)^2 - 10$