Name: _____ 5-a-day Further Maths

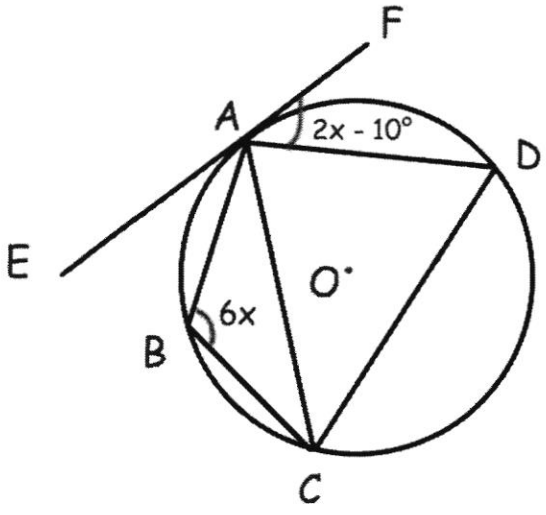
19th November

Corbettmaths

Use the factor theorem to show that $(x+4)$

is **not** a factor of
$x^3 - 12x^2 + 47x - 35 = f(x)$

$f(-4) = -64 - 192 - 188 - 35$
$= -479 \neq 0$
$\Rightarrow$ $x+4$ not a factor.



EF is a tangent to a circle, centre O.
$\angle DAF = 2x - 10°$
$\angle ABC = 6x$
AC = CD

Find the size of angle $\angle DAF$

$A\hat{D}C = 180 - 6x$ (ABCD cyclic qd)
$D\hat{A}C = 180 - 6x$ (AC = CD)
$A\hat{C}D = 2x - 10$ (alt. seg. thm)
$350 - 10x = 180$
$\Rightarrow x = 17$
$\Rightarrow D\hat{A}F = 2x - 10 = 24°$

Here are two transformation:

A: A rotation of 180° about (0,0)

B: A reflection in the x-axis

Work out the single matrix which represents the combined transformation B followed by A.

$\underline{A} = \begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$

$\underline{B} = \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$

$\underline{A}\,\underline{B} = \begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$

$= \begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$