

Bellwork Hon Alg 2 Tuesday, January 17, 2017

1. Is $2i$ a zero of this polynomial? $y = 6x^4 - 7x^3 + 21x^2 - 28x - 12$

2. Expand $(3m - 4n)^5$. Simplify each term.

3. Given $x + 3$ is a factor of $y = 48x^3 + 154x^2 + 27x - 9$, find the other factors.

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$$\begin{array}{r} \textcircled{1} \quad 2i \overline{) 6 \quad -7 \quad 21 \quad -28 \quad -12} \\ \underline{12i \quad -24 \quad -14i \quad 28 \quad -6i \quad 12} \\ 6 \quad -7+12i \quad -3-14i \quad -6i \quad 0 \end{array}$$

Yes, $2i$ is a factor because the remainder $= 0$

$$\textcircled{2} \quad (3m-4n)^5$$

$$\underline{1(3m)^5 - 5(3m)^4(4n) + 10(3m)^3(4n)^2 - 10(3m)^2(4n)^3 + 5(3m)(4n)^4 - 1(4n)^5}$$

$$243m^5 - 1620m^4n + 4320m^3n^2 - 5760m^2n^3 + 3840mn^4 - 1024n^5$$

$$\begin{array}{ccccccc} & & 1 & & & & \\ & 1 & & 1 & & & \\ & 1 & 2 & 1 & & & \\ & 1 & 3 & 3 & 1 & & \\ & 1 & 4 & 6 & 4 & 1 & \\ 1 & 5 & 10 & 10 & 5 & 1 & \end{array}$$

$$\begin{array}{r} \textcircled{3} \quad -3 \overline{) 48 \quad 154 \quad 27 \quad -9} \\ \underline{+144 \quad -30 \quad 9} \\ 48 \quad 10 \quad -3 \quad 0 \end{array}$$

$$48x^2 + 10x - 3$$

The other two factors are

$$(6x-1)(8x+3)$$

$$\begin{array}{cc} & -144 \\ 18 & \times & -8 \\ & 10 \end{array}$$

	$8x$	$+3$
$6x$	$48x^2$	$+18x$
-1	$-8x$	-3