Quiz Prob. 8

\[(x+2)(x^2+3x+5)\] \Rightarrow 6 products before combining like terms.

WEBASSIGN 2)

#16. \((x^2-x+7)(x^2+x+7) = x^4+13x^2+49\)

\[
\begin{align*}
x^4 & + x^3 + 7x^2 \\
- x^3 & - x^2 - 7x \\
\hline
7x^2 & + 7x + 49
\end{align*}
\]

\[
x^4 + 13x^2 + 49
\]

#18. \([x(x+1)-y]^2\)

\[
\begin{align*}
&= [x^2 + x - y]^2 \\
&= [x^2 + x - y] \cdot [x^2 + x - y] = x^4 + 2x^2y - 2xy^2 + y^2 + 2x - 2y
\end{align*}
\]

\[
x^4 + x - xy \\
\[x \quad + 1 - y \\
\]

\[
\begin{align*}
x^2 + x - 2y & + 1 - 2y + y^2
\end{align*}
\]

To keep each term of product in alphabetical order to keep track of \(xy = yx\) like terms

No order necessary for an expression with more than 1 variable.

#14.

\[(4x-y)^3\]

In this pattern, replace \(q\) with \(4x\)

\[
= (4x)^3 - 3(4x)^2y + 3(4x)y^2 - y^3
\]

Replace \(b\) with \(y\).

\[
= 64x^3 - 96x^2y + 48xy^2 - y^3
\]

\[
= 64x^3 - 48xy^2 + 12xy^2 - y^3
\]

\[
(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3
\]

\[
\text{descending order on } a
\]

\[
(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3
\]

\[
\text{every other term has } "-"\]