3.7 **13.** Expand, then simplify and verify.

a) $(3m + 2)(2m^2 + m + 5)$

$= 3m(\underline{\quad} + \underline{\quad} + \underline{\quad}) + 2(\underline{\quad} + \underline{\quad} + \underline{\quad})$

$= \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

$= \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

$= \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

$= \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

Verify. Substitute $m = 2$.

Left side

$(3m + 2)(2m^2 + m + 5)$

$= (\underline{\quad} \times 2 + \underline{\quad})(\underline{\quad} \times 2^2 + \underline{\quad} \times 2 + \underline{\quad})$

$= (\underline{\quad} + \underline{\quad})(\underline{\quad} + \underline{\quad} + \underline{\quad})$

$= (\underline{\quad})(\underline{\quad})$

$= \underline{\quad}$

Right side

$= \underline{\quad} \times 2^3 + \underline{\quad} \times 2^2 + \underline{\quad} \times 2 + \underline{\quad}$

$= \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

$= \underline{\quad}$

The numbers match, so the product is likely correct.

b) $(3z - 2)(z^2 - 3z - 4) = \underline{\quad}(\underline{\quad} - \underline{\quad} - \underline{\quad}) - \underline{\quad}(\underline{\quad} - \underline{\quad} - \underline{\quad})$

$= \underline{\hspace{4cm}}$

Verify. Substitute $z = 2$.

Left side

Right side

The numbers match, so the product is likely correct.

3.8 **14.** Factor.

a) $4c^2 + 20c + 25$

This is a $\underline{\hspace{4cm}}$.

The 2nd term is $\underline{\hspace{2cm}}$,

so the factors of $\underline{\quad}$ are $\underline{\hspace{2cm}}$.

$4c^2 + 20c + 25$

$(\underline{\quad})^2 \quad (\underline{\quad})^2$

So, $4c^2 + 20c + 25 = \underline{\hspace{3cm}}$

$= \underline{\hspace{3cm}}$

b) $16m^2 - 81$

This is a $\underline{\hspace{4cm}}$.

$16m^2 = \underline{\hspace{2cm}}$

$81 = \underline{\hspace{2cm}}$

So, $16m^2 - 81$

$= \underline{\hspace{3cm}}$