Polynomial Quiz Review -

Remember!

$(x^a)^b = x^{a \cdot b}$

$(x^a)(x^b) = x^{a+b}$

1) $(3x^2yz^3)^2 (-4xyz^5)^3$

$= [(3)^2(x^2)^2(y)^2(z^3)^2][(-4)^3(x)^3(y^3)(z^5)^3]$

$= [9\ (x^4)(y^2)(z^6)][(-64)(x^3)(y^3)(z^{15})]$

$= (9)(-64) \cdot (x^4)(x^3) \cdot (y^2)(y^3) \cdot (z^6)(z^{15})$

$= -576 \cdot x^7 \cdot y^5 \cdot z^{21}$

2) a) $(x+3)^2 = (x+3)(x+3)$

$= x^2 + 6x + 9$

	x	$+3$
x	x^2	$3x$
$+3$	$3x$	9

So... $(x+3)^2 \neq x^2 + 9$

and it is NOT an identity.

b) $x^2 - 9 = (x+3)(x-3)$

$x^2 - 9 = x^2 - 9$ ✓

	x	$+3$
x	x^2	$3x$
-3	$-3x$	-9

So it is an identity

c) $2(x-3) = 2x+6$

$2x - 6 \neq 2x + 6$

and it is NOT an identity.

Remember: identity - if an equation is always true. or the equations are equal.

3) $f(x)=5x^4-3x^3+5x-3$ $g(x)=2x^4+6x^2-7x-3$

$f(x)+g(x)$

$(5x^4-3x^3+5x-3)+(2x^4+6x^2-7x-3)$

$5x^4+2x^4 \quad -3x^3 \quad +6x^2 \quad +5x-7x \quad -3-3$

$7x^4 \quad -3x^3 \quad +6x^2 \quad -2x \quad -6$

$f(x)-g(x)$

$(5x^4-3x^3+5x-3)-(2x^4+6x^2-7x-3)$

$5x^4 \quad -3x^3 \quad +5x \quad -3 \quad -2x^4 \quad -6x^2 \quad +7x \quad +3$

$5x^4-2x^4 \quad -3x^3 \quad -6x^2 \quad +5x+7x \quad -3+3$

$3x^4 \quad -3x^3 \quad -6x^2 \quad +12x \quad +0$

4) $f(x)=3x+4$ $g(x)=x^2-3x-7$

$f(x)\cdot g(x)$

$=(3x+4)(x^2-3x-7)$

$=3x^3-5x^2-33x-28$

	x^2	$-3x$	-7
$3x$	$3x^3$	$-9x^2$	$-21x$
4	$4x^2$	$-12x$	-28