Math 118 Calculus 1a Skills 1 : Answer Key

#1

a) $(x^2+4) - (x-6)$

$x^2+4-x+6$

$\boxed{x^2 - x + 10}$

b) $(3x^2+3x+h-1) - (x^2+3x-1)$

$3x^2+3x+h-1 - x^2+3x+1$

$\boxed{2x^2+h}$

c) $y^2+2yz+z^2+y+z-(y^2+y)$

$y^2+2yz+z^2+y+z-y^2-y$

$\boxed{2yz+z^2+z}$

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

$2x+3z^2+4-5x+5z+7x^2+7z^2$

$\boxed{7x^2-3x+10z^2+5z+4}$

#2

a) $(x+3)(x-5)$

$x^2-5x+3x-15$

$\boxed{x^2-2x-15}$

b) $(t^2-9t+1)(3t-4)$

$3t^3-4t^2-27t^2+36t-4+3t$

$\boxed{3t^3-31t^2+39t-4}$

c) $(x+2)(x+3)(x-5)$

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

$x^3-5x^2+3x^2-15x+2x^2-10x+6x-30$

$\boxed{x^3-19x-30}$

d) $(x+y)^2$

$(x+y)(x+y)$

$x^2+xy+xy+y^2$

$\boxed{x^2+2xy+y^2}$

e) $(a+2)^3$

$(a+2)(a+2)(a+2)$

$(a^2+2a+2a+4)(a+2)$

$(a^2+4a+4)(a+2)$

$a^3+2a^2+4a^2+8a+4a+8$

$\boxed{a^3+6a^2+12a+8}$

#3.

a) $2j^3-8j^2$

$\boxed{2j^2(j-4)}$

b) $2xh+h^2-4h$

$\boxed{h(2x+h-4)}$

c) $-3x^2h+3xh^2-h^3$

$\boxed{h(-3x^2+3xh-h^2)}$

d) $x^2+2xy+2xz$

$\boxed{x(x+2y+2z)}$

#4.

a) $\frac{x(x-1)}{xz} = \boxed{\frac{x-1}{z}}$

b) $\frac{qr^2}{q+qr^2} = \frac{q(r^2)}{q(1+r^2)} = \boxed{\frac{r^2}{1+r^2}}$

c) $\frac{qr^2}{r^2+qr^2} = \frac{r^2(q)}{r^2(1+q)} = \boxed{\frac{q}{1+q}}$

d) $\frac{t^2-4t}{t^6+8t} = \frac{t(t-4)}{t(t^5+8)} = \boxed{\frac{t-4}{t^5+8}}$

e) $\frac{x^2h-x^2}{h-1} = \frac{x^2(h-1)}{h-1} = \boxed{x^2}$