Chapter 3 Final Review

1. Factor each polynomial.

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

b) $9x^3y^4 + 27xy^2$

c) $-3xy^6 - 15x^2y^2 + 3xy$

d) $2y^2x^5 + 2y^6 + 4y$

e) $72x^2y^3 - 48x^3y + 80x^2y$

f) $18u^7v^5 - 54u^3v^3 - 27uv^2$

g) $-9a^4b^5 - 12a^2b^3 + 6a^3$

h) $24y^6 + 20y^3 - 8y^2x$

i) $-12f^8g^6 + 6f^6g^7 + 12f^7g^5 + 54f^6g^3$

j) $-21ab^3 - 21a^2b^2 - 35ab^2 - 14a^2b$

2. Factor each trinomial.

a) $x^2 - 9x + 18$

b) $x^2 - 15x + 54$

c) $p^2 - 14p + 40$

d) $x^2 + x - 42$

e) $n^2 - 12n + 35$

f) $n^2 + 9n + 14$

g) $r^2 + 3r - 28$

h) $x^2 + 7x + 6$

i) $r^2 - r - 12$

j) $m^2 + 5m - 50$

3. Factor each trinomial.

a) $5r^2 + r - 4$

b) $3k^2 - 7k - 10$

c) $7x^2 + 20x + 12$

d) $3x^2 - 2x - 16$

e) $7p^2 - 5p - 2$

f) $9x^2 - 12x - 32$

g) $4r^2+15r-25$

h) $4x^2+x-5$

i) $9p^2+52p-12$

j) $9x^2+7x-2$

4. Factor each polynomial.

a) $16x^2-9y^2$

b) $49x^2-25$

c) $4a^2-9b^2$

d) $225-121x^2$

e) $4x^2+12x+9$

f) $16x^2+24x+9$

g) $25x^2-20x+4$

h) $9x^2-30x+25$

i) $25x^2-10x+1$

j) $a^2+8b+16$

5. Expand and simplify each expression.

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

b) $(x-4)(x+8)$

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

d) $(2x-5)(4x-7)$

e) $(2p+3)(3p-1)$

f) $(4x-1)(7x-9)$

g) $(2b+7)(2b^2-2b-4)$

h) $(4n+1)(4n^2+3n+8)$

i) $(3x^2+6x+8)(8x-5)$

j) $(5x^2-6x+1)(7x-7)$

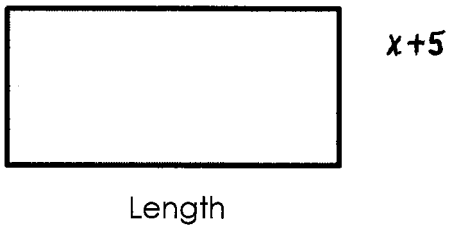
k) $2(x+3)+3(3x-2)$

l) $(x+2)^2-4(x+1)$

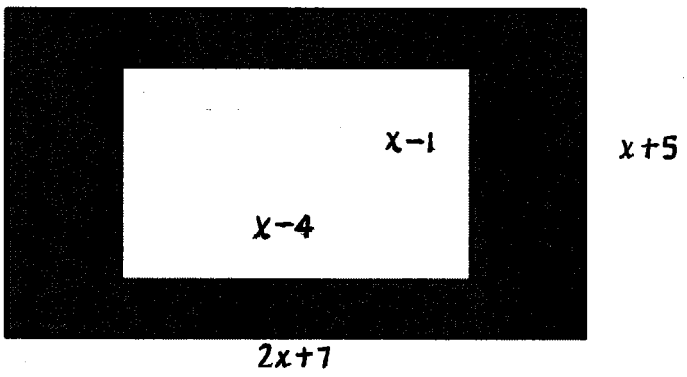
m) $2x(x-3)+x-4(2x+5)$

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

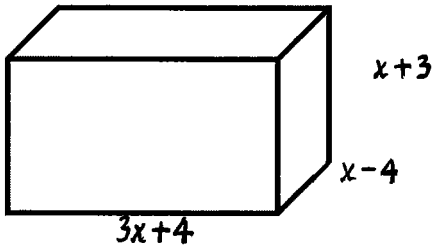
6. Given that the area of the rectangle below is $2x^2+9x-5$, determine the length of the rectangle.



7. Determine an expression to represent the shaded area below.



8. Determine a simplified expression for the volume of the prism below. Remember, $V = L \times w \times h$.



Additional Practice: p.199 #11bdf, 12abc, 13, 18acef, 19, 24bdf, 25, 27ac, 30, 32, 33ace