Name: _____ Date: _____

BLM 5–7

Section 5.4 Factor Trinomials of the Form $ax^2 + bx + c$

1. Factor fully.
a) $2x^2 + 14x + 24$
b) $4x^2 – 24x – 28$
c) $5x^2 – 45x + 100$
d) $3x^2 + 3x – 126$

2. Factor fully. Expand to check.
a) $–2x^2 + 12x + 14$
b) $6x^2 – 102x + 432$
c) $–5x^2 – 20x + 60$
d) $–1.5x^2 + 7.5x – 6$
e) $–3.5x^2 – 28x – 42$
f) $0.6x^2 – 1.8x – 16.8$

3. Factor fully, then check.
a) $3x^2 + 12x$
b) $4x^2 – 24x$
c) $–7x^2 + 14x$
d) $–1.5x^2 + 7.5x$
e) $3.6x^2 + 21.6x$

4. Factor fully. Check your answer.
a) $5x^2 + 5x – 10$
b) $3x^2 – 27$
c) $4x^2 – 28x$
d) $–6x^2 – 6x + 72$
e) $–2x^2 + 8$
f) $–4x^2 – 20x + 56$
g) $1.5x^2 + 3x – 4.5$
h) $–5.6x^2 + 89.6$

5. Factor each trinomial. Then substitute $x = 3$ into the original trinomial and the factored expression and solve. Are the solutions the same? Explain.
a) $2x^2 – 2x – 60$
b) $–3x^2 + 15x + 18$
c) $4x^2 – 12x – 112$
d) $–0.5x^2 + 0.5x + 3$

6. The volume, V, of a cube is given by the relation $V = 6x^2 + 42x + 72$, where x is the side length in centimetres.
a) Factor the expression for volume.
b) Find the volume of a cube with side length 10 cm.

7. The height, h, in metres, of a toy rocket at any time t, in seconds, during its flight can be estimated using the relation $h = –5t^2 + 10t + 15$.
a) Write the relation in factored form.
b) What is the initial height of the toy rocket?

8. The surface area of an open cylinder is given by the relation $SA = \pi r^2 + 2\pi rh$.
a) Factor the expression for the surface area.
b) An open cylinder has radius 5 cm and height 8 cm. Use the original relation and factored expression from part a) to find the surface area, to the nearest square centimetre.

