

NAME:

Unsupported work may receive no credit.

**Problem 1**

Factor completely

(a)  $ac + ad + bc + bd$

(b)  $a^2x^2 - b^2$

(c)  $x^2 + 4x + 4 - y^2$

(d)  $x^2e^{-3x} + 2xe^{-3x}$

(e)  $t^2e^{5t} + 3te^{5t} + 2e^{5t}$

**Problem 2**

Solve each equation.

(a)  $y^2 - 5y - 6 = 0$

(b)  $\frac{2}{x} + \frac{3}{2x} = 8$

(c)  $(1/64)t^3 = t$

**Problem 3**

Solve for the indicated variable

(a)  $T = 2\pi\sqrt{\frac{l}{g}}$ , for  $l$ .

(b)  $Ab^5 = C$ , for  $b$

(c)  $|2x + 1| = 7$ , for  $x$

**Problem 4**

Graph the functions and find the points of intersection

(a)  $x^2 + y^2 = 25$  and  $y = x - 1$

(b)  $y = x^2$  and  $y = 15 - 2x$

**Problem 5**

Complete the square

(a)  $x^2 + 8x$

(b)  $y^2 - 12y$

(c)  $s^2 + 6s - 8$

(d)  $3r^2 + 9r - 4$

**Problem 6**

Rewrite in the form  $a(x - h)^2 + k$

(a)  $x^2 - 2x - 3$

(b)  $10 - 6x + x^2$

(c)  $-x^2 + 6x - 2$

(d)  $3x^2 - 12x + 13$

**Problem 7**

Solve by completing the square

(a)  $r^2 - 2r = 8$

(b)  $n^2 + 4n - 3 = 2$

(c)  $2q^2 + 4q - 5 = 8$

(d)  $8x^2 - 1 = 2x$

**Problem 8**

Solve using the quadratic formula

(a)  $n^2 - 4n - 12 = 0$

(b)  $z^2 + 4z = 6$