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Chapter 2 Problem Solving Set B:

Bronze:

a) $2kx^2 + 4x + k = 0$ → using the discriminant

$(4)^2 - 4(2k)(k) = 0$
$16 - 4(2k^2) = 0$
$16 - 8k^2 = 0$

b) $16 - 8k^2 = 0$
$8k^2 = 16$
$k^2 = 2$
$k = \pm 2$

Silver:

$3x^2 + px + 2p = 0$ → using the discriminant

$(p)^2 - 4(3)(2p) = 0$
$p^2 - 4(6p) = 0$
$p^2 - 24p = 0$

$p^2 - 24p = 0$
$p^2 = 24p$
$p = 24$

Gold:

$$\frac{3 - x^2}{x + 2} = q$$

$3 - x^2 = q(x + 2)$
$3 - x^2 = qx + 2q$

$x^2 + qx + (2q - 3) = 0$ → using the discriminant

$(q)^2 - 4(1)(2q - 3) = 0$
$q^2 - 4(2q - 3) = 0$
$q^2 - 8q + 12 = 0$

$(q - 6)(q - 2) = 0$
$q = 6$ or $q = 2$