MPM2D0/E **SOLVING QUADRATIC EQUATIONS BY FACTORING**

1. Solve by factoring.

a) $x^2 - 4x + 3 = 0$ b) $m^2 - m - 56 = 0$ c) $2a^2 + a - 15 = 0$

d) $4c^2 - 49 = 0$ e) $9m^2 - 12m = -4$ f) $a(a-9) = 2(a-14)$

g) $6x(x+3) + 5 = 2(x^2 - x - 10)$ h) $(2x-1)(x-3) = (x+1)(x-2)$

i) $2x^2 - 4x = 0$ j) $3x^2 = 10x$ k) $x^2 + x = 0$

2. Write a quadratic equation with roots:

a) $5, -2$ b) $6, -6$ c) $\frac{-7}{3}, \frac{3}{4}$ d) $\frac{1}{6}, \frac{5}{8}$ e) $0, \frac{-9}{8}$

3. If one root of a quadratic equation is 5, find the value of k and the other root.

a) $x^2 - 3x + k = 0$ b) $x^2 + kx + 40 = 0$

For the following problems, a formal algebraic solution is required. Define your variable!

4. Find two consecutive integers with a product of 156.

5. The sum of the squares of two consecutive integers is 145. Find the integers.

6. The sum of the squares of three consecutive integers is 149. Find the integers.

ANSWERS:

1.a) $x \in \{3, -1\}$ b) $m \in \{8, -7\}$ c) $a \in \left\{-3, \frac{5}{2}\right\}$ d) $c \in \left\{\frac{7}{2}, \frac{-7}{2}\right\}$ e) $m \in \left\{\frac{2}{3}\right\}$ f) $a \in \{4, 7\}$

g) $x \in \left\{\frac{-5}{2}\right\}$ h) $x \in \{5, 1\}$ i) $x \in \{0, 2\}$ j) $x \in \left\{0, \frac{10}{3}\right\}$ k) $x \in \{0, -1\}$

2.a) $x^2 - 3x - 10 = 0$ b) $x^2 - 36 = 0$ c) $12x^2 + 19x - 21 = 0$ d) $48x^2 - 38x + 5 = 0$
e) $8x^2 + 9x = 0$

3.a) $k \in \{-10\}$, $x \in \{-2\}$ b) $k \in \{-13\}$, $x \in \{8\}$

4. 12, 13 or $-13, -12$

5. 8, 9 or $-9, -8$

6. 6, 7, 8 or $-8, -7, -6$