Working with Quadratic Equations & Expressions

1. Expand each of the following.

    a) $2x(3x - 1)$ b) $(x + 3)(x - 2)$ c) $(2x + 1)(5x - 2)$

2. Factor each of the following by finding a common factor.

    a) $4x^2 - 20x$ b) $6t^2 + 3t$ c) $10x - 3x^2$

3. Factor each of the following simple trinomials.

    a) $x^2 + 4x + 3$ b) $x^2 - 2x - 35$ c) $x^2 - 7x + 12$ d) $n^2 - 11n + 10$

4. Solve the following quadratic equations ***by factoring.***

    a) $x^2 - 10x = 0$ b) $x^2 - 9x + 20 = 0$ c) $n^2 - 5n = 50$ d) $7x^2 - 14x = 0$

5. Solve each quadratic equation (using any method you like). Round your final answer to 2 decimal places.

    a) $3x^2 - 45 = 0$ b) $2x^2 - 8x - 1 = 0$

    c) $8x = 9x^2 - 1$ d) $x^2 - 6 = 7x$

6. Find the x and y intercepts for the graph of $y = -2x^2 - x + 10$

7. The flight of a golf ball hit from a tee can be modeled by the function
    $h(t) = -4.9t^2 + 6t + 0.4$ where *h(t)* is the height of the golf ball (in metres) after *t* seconds.

    a. How long is the ball in the air for?
    b. How high is the ball after 1 second?

FINAL ANSWERS

1. a) $6x^2 - 2x$ b) $x^2 + x - 6$ c) $10x^2 + x - 2$

2. a) $4x(x - 5)$ b) $3t(2t + 1)$ c) $x(10 - 3x)$

3. a) $(x+3)(x+1)$ b) $(x - 7)(x+5)$ c) $(x - 4)(x - 3)$ d) $(n - 10)(n - 1)$

4. a) $x = 0$ or 10 b) $x=5$ or $x = 4$ c) $n = -5$ or $n = 10$ d) $x = 0$ or $x = 2$

5. a) $x = 3.87$ or $x = -3.87$ b) $x = -0.12$ or $x = 4.12$ c) $x = 1$ or $x = -1/9$ d) $x = -0.77$ or $x = 7.77$

6. y int at 10 or (0,10). x-intercepts at (2,0) and (-2.5, 0)

7. a) about 1.29 seconds   b) 1.5m