Practice Test

Complete the squares and solve using vertex form.

1) $a^2 - 6a - 41 = -10$

2) $9v^2 + 18v - 68 = 9$

Solve each equation by factoring.

3) $2n^2 - 8 = -5 + n$

4) $8m^2 + 15m - 43 = -2m^2 + 2$

Solve each equation with the quadratic formula.

5) $-k^2 + 24 - 4k = -4k + 9$

6) $8b^2 - 5 = 5b^2 - 2b$

What value of K would give 1 real root for the following equations?

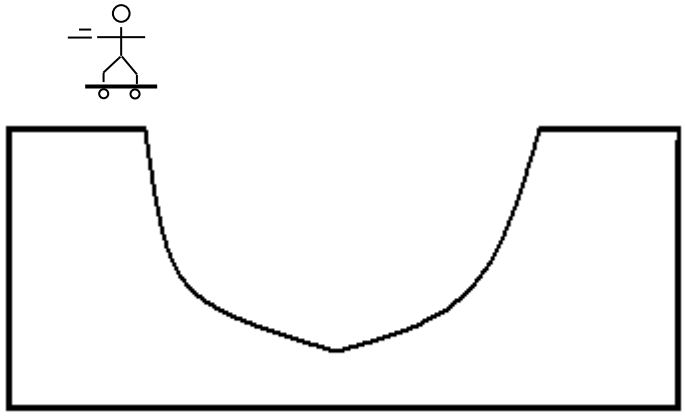
7.) $e^2 + 14e + K = 0$

8.) $9f^2 + 16f + K = 0$

9.) Twice the square of a number is the same as 48 minus four times that number. Write out as an equation, then solve!

10.) **A square field had 3 m added to its length and 2 m added to its width. The field then had an area of 90 m^2. Find the length of a side of the original field.**

11.) **A half-pipe is a specialized track where skateboarders show off their stunts. During skateboarding competitions, skateboarders start at one end of the half pipe and have a certain amount time to perform their tricks.**



The formula for this half pipe is $h = 0.72t^2 - 3.6t + 6$**, where *h* represents the skater's height above the ground in metres, and *t* represents the time the skater is moving along the half-pipe, in seconds.**

a.) What is the skater's initial height above the ground?

b.) How much time would it take the skater to reach the half-pipe's lowest point?

c.) When crossing from one end of the half-pipe to the other, how much time did the skater remain 3 m above the ground?

12.) **Two legs of a right-angled triangle add up to 42 cm. What is the maximum area?**

13.) **The function $h = -5t^2 + 20t + 1$ models the height, *h* meters, of a baseball as a function of time, *t* seconds, since it was hit. The ball hit the ground before a fielder could catch it.**

a) What was the height of the ball after 2 seconds?

b) When did the ball hit the ground?

c) What is the max height of the ball?