**Applications of Quadratic Equations /16**

**1.** (4 points) When 3 times a number is added to the square of the number, the result is 40.

Determine the number.

**2.** (4 points) A model rocket is launched. Its height, *h* metres, after *t* seconds is modelled by this formula: . When will the rocket hit the ground? Give the answer to the nearest tenth of a second.

**3.** (4 points) Determine the lengths of the legs in this right triangle. Explain your strategy.



**4.** (4 points) Marc’s rectangular garden measures 7 m by 10 m. He wants to double the area of his garden by adding equal lengths to both dimensions. Determine this length to the nearest tenth of a metre. Show your work.

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