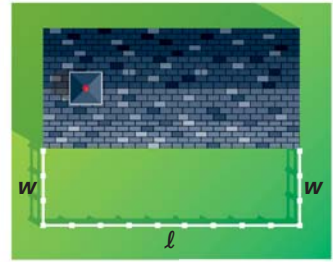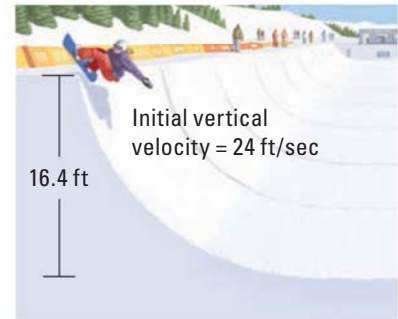48. **MULTI-STEP PROBLEM** You have 80 feet of fencing to make a rectangular horse pasture that covers 750 square feet. A barn will be used as one side of the pasture as shown.

    a. Write equations for the perimeter and area of the pasture.

    b. Use substitution to solve the system of equations from part (a). What are the possible dimensions of the pasture?

49. **TAKS REASONING** You purchase stock for $16 per share, and you sell the stock 30 days later for $23.50 per share. The price y (in dollars) of a share during the 30 day period can be modeled by $y = -0.025x^2 + x + 16$ where x is the number of days after the stock is purchased. Could you have sold the stock earlier for $23.50 per share? *Explain.*

50. **SNOWBOARDING** During a "big air" competition, snowboarders launch themselves from a half pipe, perform tricks in the air, and land back in the half pipe.

    a. **Model** Use the vertical motion model to write an equation that models the height h (in feet) of a snowboarder as a function of the time t (in seconds) she is in the air.

    b. **Apply** How long is the snowboarder in the air if she lands 13.2 feet above the base of the half pipe? Round your answer to the nearest tenth of a second.

Initial vertical velocity = 24 ft/sec

16.4 ft

Cross section of a half pipe

Animated **Algebra** at classzone.com

51. **CHALLENGE** You are knitting a rectangular scarf. The pattern you have created will result in a scarf that has a length of 60 inches and a width of 4 inches. However, you happen to have enough yarn to cover an area of 480 square inches. You decide to increase the dimensions of the scarf so that all of your yarn will be used. If the increase in the length is 10 times the increase in the width, what will the dimensions of the scarf be?

TAKS **PRACTICE** at classzone.com

MIXED REVIEW FOR TAKS

52. **TAKS PRACTICE** When graphed, which function would appear to be shifted 2 units up from the graph of $y = x^2 + 1$? *TAKS Obj. 5*

    (A) $y = x^2 - 1$

    (B) $y = 2x^2 + 1$

    (C) $y = (x + 2)^2 + 1$

    (D) Not here

53. **TAKS PRACTICE** Pedro has 6 more DVDs than Matt has. Laura has twice as many DVDs as Pedro has. Altogether they have 73 DVDs. Which equation can be used to find how many DVDs each person has? *TAKS Obj. 10*

    (F) $6x + 2x + x = 73$

    (G) $x + (x + 6) + 2x = 73$

    (H) $x + (x + 6) + 2(x + 6) = 73$

    (J) $x + 2(6x) + 6x = 73$