Math test (practice) for INS 2006-2007

A vertical pole casts a shadow 10 feet long. At the same time, a man 6 feet tall casts a shadow 4 feet long. What is the height, in feet, of the pole?

If 35% of a number is 70, what is the number?

The product of $3x^2$ and $6x^4$ is

(1) $2x^2$
(2) $9x^6$
(3) $18x^6$
(4) $18x^8$

Find the length of the hypotenuse of a right triangle whose legs have lengths 6 and 8.

Solve the following system of equations for y:

$$3y + x = 13$$
$$y + x = 1$$

On a scale drawing, 1 centimeter represents 30 kilometers. How many kilometers are represented by a line segment $2\frac{1}{2}$ centimeters long?

Which coordinates represent a point on the graph of $y = 4x - 14$?

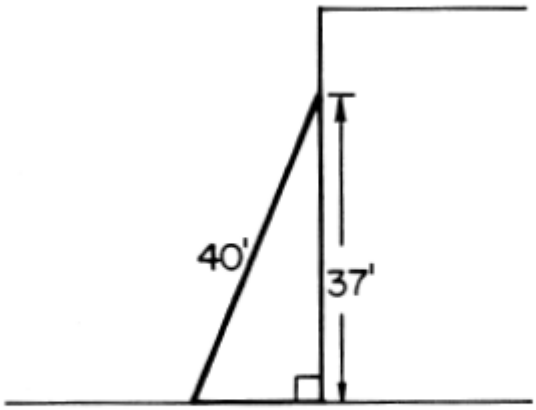
(1) $(-2,6)$
(2) $(2,-6)$
(3) $(-6,2)$
(4) $(6,-2)$

Factor: $x^2 - 9x + 20$

Solve for x: $9x + 12 = x - 4$

Find the positive root of the equation $6x^2 = 54$.

In the diagram below, a 40-foot pole leans against a building. The top of the pole reaches a point on the building which is 37 feet above the ground.



a Find to the *nearest degree* the measure of the angle the pole makes with the wall. [5]

b Find to the *nearest foot* the distance from the bottom of the pole to the foot of the building. [5]