

Key

1. (a) Could the measurements 23 cm, 12 cm, and 10 cm be the lengths for the three sides of a triangle? Explain your reasoning in 1-2 sentences.  
 0.5 No, because  $12 + 10 \not> 23$ . (The barn doors won't even meet, let alone form a  $\Delta$ .)

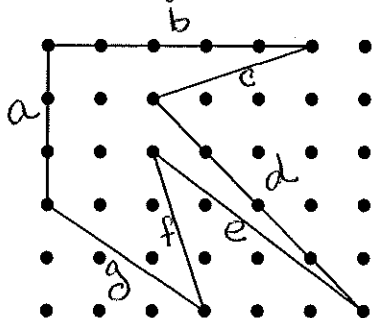
- (b) Could the measurements 13 cm, 24 cm, and 35 cm be the lengths for the three sides of a right triangle? Explain your reasoning in 1-2 sentences.

$$13^2 + 24^2 = 169 + 576 = 745$$

$$35^2 = 1225$$

The numbers have  $a^2 + b^2 \neq c^2$ , so no, not a right  $\Delta$ .

- 2.5 (2) Find the entire perimeter of the figure shown. The horizontal or vertical distance between adjacent dots counts as 1 inch. Show clear work, and round to the nearest tenth.



(1/2) Total perim =  $a + b + c + d + e + f + g$

$$= 3 + 5 + 1 + 4 + 3 + 5 + 3$$

$$= 28.7 \text{ in}$$

$a = 3$   
 $b = 5$

(1/2) c:

$$1^2 + 3^2 = c^2$$

$$10 = c^2$$

$$3.2 = \sqrt{10} = c$$

(1/2) d:

$$4^2 + 4^2 = d^2$$

$$32 = d^2$$

$$5.7 = \sqrt{32} = d$$

f:

Same  $\Delta$  as c  
 $3.2 = f$

(1/2) e:

$$3^2 + 4^2 = e^2$$

$$25 = e^2$$

$$5 = e$$

(1/2) g:

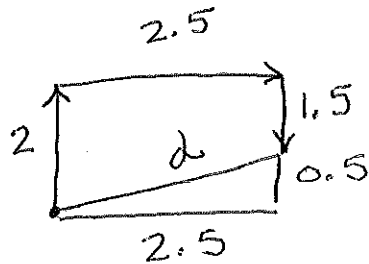
$$2^2 + 3^2 = g^2$$

$$13 = g^2$$

$$3.6 = \sqrt{13} = g$$

3. On the salt flats, a hiker starts from a geological marker and walks 2 km north, then 2.5 km west, and finally 1.5 km south. If he walks directly back to the mark, how far will that distance be? Show clear work; round to the nearest tenth.

0.5



$$2.5^2 + 0.5^2 = d^2$$

$$6.25 + 0.25 = d^2$$

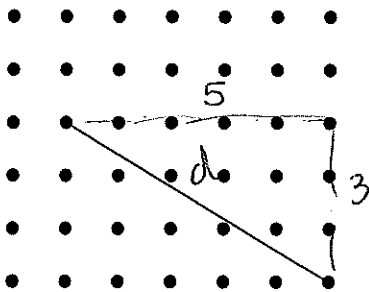
$$6.5 = d^2$$

$$= \sqrt{6.5} = d$$

$$2.5 \text{ km}$$

1.5

4. Show clear work in finding the circumference of a circle whose diameter is the length shown. Round to the nearest hundredth.



$$5^2 + 3^2 = d^2$$

$$34 = d^2$$

$$5.83 = \sqrt{34} = d$$

$$C = \pi d$$

$$= \pi (5.83)$$

$$= 18.32 \text{ (no units needed)}$$