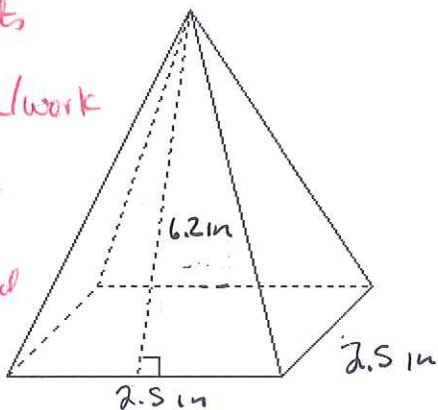


Chapter 1 Free Response Practice Test 1

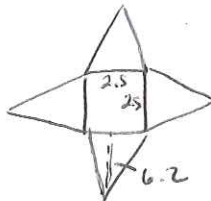
Find the surface area of the solid.

1.

- 3 points
- formula/work
- Answer
- units squared



Check out the net



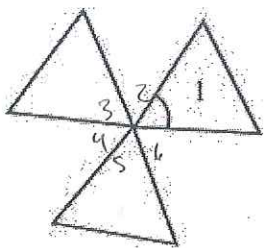
Surface Area includes

$$\begin{aligned}
 & 1 \text{ square} + 4 \text{ triangles} \\
 & = 1 (\text{side}^2) + 4 \left( \frac{1}{2} \text{ base} \cdot \text{height} \right) \\
 & = (2.5)^2 + 4 \left[ \frac{1}{2} \cdot 2.5 \cdot 6.2 \right] \\
 & = 6.25 + 31 \\
 & = \boxed{37.25 \text{ in}^2}
 \end{aligned}$$

↑ remember your units

Pattern blocks can be arranged to fit in a circular pattern without leaving spaces. Remember that the measurement around a full circle is  $360^\circ$ .

2. Find the degree measure of two thirds of the numbered angle shown below. All angle measures are congruent.



1) All angle measures are congruent and a circle is  $360^\circ$  so

$$m\angle 1 = \frac{360^\circ \text{ degrees}}{6 \text{ angles}} = 60^\circ$$

2) To find  $\frac{2}{3}$  of  $m\angle 1$

calculate  $\frac{2}{3} \times 60$

$$= \frac{2}{3} \times \frac{60}{1} = \boxed{40^\circ}$$

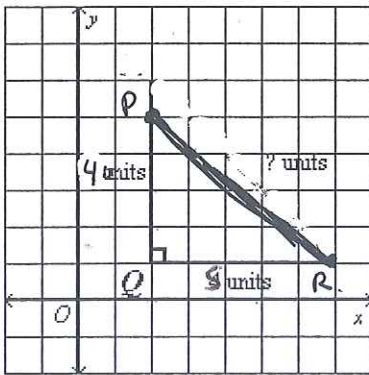
3 points

- Find measure of angle 1 showing work
- Find  $\frac{2}{3}$  of  $m\angle 1$  showing calculator
- Write degree symbol

**Chapter 1 Free Response Practice Test**

4 pts

3. Explain how you can find the distance between two points without a ruler. Include (1) how to use the Pythagorean Theorem and (2) the Distance Formula to find the distance between two points, and the length of  $\overline{PR}$  from the figure given below. Find the distance using both methods.



① Pythagorean Theorem  
note a & b are sides of the right angle in a right  $\Delta$ .

$$a^2 + b^2 = c^2$$

$$4^2 + 5^2 = c^2$$

$$16 + 25 = c^2$$

$$41 = c^2$$

2 pts worked answer with Pyth. thm

follow order of operations!

P E M D A S

$$\sqrt{41} = c$$

↑  
if these answers are different find your mistake!

② Distance Formula

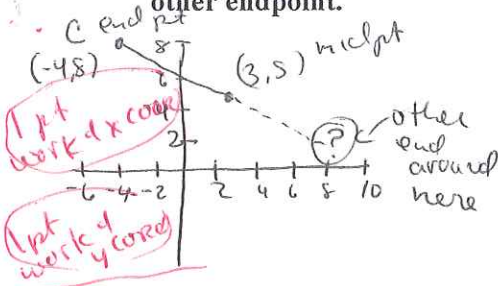
$$d = \sqrt{(7-2)^2 + (5-1)^2}$$

$$= \sqrt{5^2 + 4^2}$$

$$= \sqrt{25 + 16} = \sqrt{41}$$

2 pts work & answer w/ distance formula  
3 pts } P(2, 5)  
R(7, 1)

4. The coordinates of midpoint  $M$  and endpoint  $C$  of a segment are  $M(3, 5)$  and  $C(-4, 8)$ . Find the coordinates of the other endpoint.



endpts  
C (-4, 8)  
(x, y)  
midpt  
(3, 5)

$$\frac{-4+x}{2} = 3$$

$$-4+x = 6$$

$$+4 \quad +4$$

$$x = 10$$

$$\frac{8+y}{2} = 5$$

$$8+y = 10$$

$$-8 \quad -8$$

$$y = 2$$

1 pt Answer other endpt is (10, 2)

5. BONUS QUESTION The longitude-latitude coordinates of Worland, Wyoming are  $(48.2^\circ N, 106.48^\circ W)$  and of Portland, Maine are  $(40.27^\circ N, 72.24^\circ W)$ . If Worland is one endpoint of a segment and Portland is its midpoint, find the latitude and longitude of the other endpoint.

1 pt must like #4!

endpts  
W (48.2, 106.48)  
 $\Sigma$  (x, y)  
midpoint  
P (40.27, 72.24)

APPLY MIDPOINT formula

$$\frac{48.2+x}{2} = 40.27$$

$$48.2+x = 80.54$$

$$-48.2 \quad -48.20 \quad (+)$$

$$x = 32.34$$

$$\frac{106.48+y}{2} = 72.24$$

$$106.48+y = 144.48$$

$$-106.48 \quad -106.48 \quad (+)$$

$$y = 38$$

3 bonus pts possible

Answer: Other Endpoint  $(32.34^\circ N, 38^\circ W)$

1 pt must have degrees & N, W in answer