

## Geometry Packet - Answer Key

Page 2:

- 8) C
- 12) C (parallelogram)
- 12) A (rectangle)

Page 3:

- 15) 8 cm
- 19) 12
- 15) 9 meters

Page 4:

- 20) ORQ - See attached

Page 5:

- 20) ORQ - See attached

Page 6:

- 22) C
- 26) D
- 38) B

Page 7:

- 32) A
- 34) C
- 36) A

Page 8:

- 28) A
- 40) B
- 33) B
- 23) B

Page 9:

- 28) C
- 30) B
- 39) D

Page 10:

- 29) B
- 38) C
- 31) D

Page 11:

- 25) D
- 32) B
- 35) C

Page 12:

- 40) A

Page 13:

- 37) B
- 41) ORQ - See attached

Page 14:

- 42) ORQ - See attached

Page 15:

- 41) ORQ - See attached

Page 16:

- 42) ORQ - See attached

- a)  $x \cdot y$
- b)  $3x \cdot 2y$  or  $6xy$
- c) The ratio of the area of the children's pool to the area of the adult pool is  $1:6$ . This is because the children's pool has an area of  $1xy$ , and the adult pool has an area of  $6xy$ , so therefore the ratio is  $1:6$ .
- d) The ratio of the volume of water in the children's pool to the volume of water in the adult pool is  $1:24$ . This is because if the depth of the children's pool is  $z$ , then the depth of the adult pool is  $4z$ . Then, since the equation for the volume of a right rectangular prism is  $V = lwh$ , then the volume of the children's pool is  $1xyz$ , and the adult pool is  $6xy \cdot 4z$ , or  $24xyz$ , so the ratio is  $1:24$ .

A. 54 in.

$$12 + 8 + 3 + 4 + 8 + 4 + 10 + 5$$

$$20 + 3 + 4 + 8 + 4 + 10 + 5$$

$$23 + 4 + 8 + 4 + 10 + 5$$

$$27 + 8 + 4 + 10 + 5$$

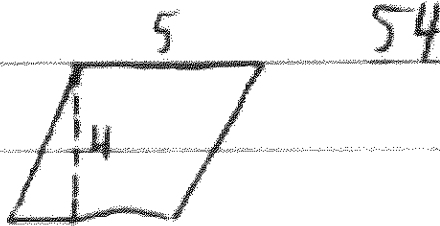
$$35 + 4 + 10 + 5$$

$$39 + 10 + 5$$

$$39 + 15$$

B. 20 in<sup>2</sup>

$$5 \times 4$$

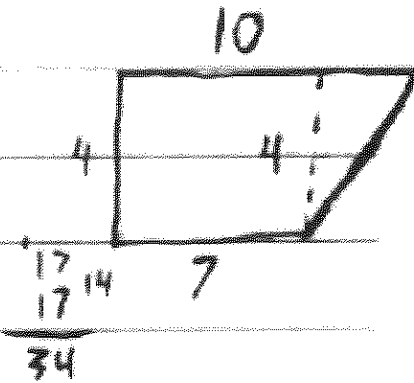


C. 34 in<sup>2</sup>

$$\frac{1}{2} 4 (10 + 7)$$

$$\frac{1}{2} 4 (17)$$

$$2 (17)$$



D. 18 in<sup>2</sup>

$$\frac{1}{2} 12 (3)$$

$$6 \times 3$$

$$\frac{6 \cdot 12}{6 \cdot 6} = 18$$



a)  $a^2 + b^2 = c^2$  ← using Pythagorean Theorem

$$x^2 + 16^2 = 20^2$$

$x^2 + 256 = 400$  The other side length is  $x = 12$  ft.

$$x^2 = 144$$

$$x = 12$$

b)  $A = \frac{1}{2}bh$  The area including the fountain is  $96 \text{ ft}^2$ .

$$A = \frac{1}{2}(12)(16)$$

$$A = 6(16)$$

$$A = 96$$

c)  $C = 8\pi$   $8\pi = 2\pi r$  The radius of the fountain is 4 ft.

$$C = 2\pi r \quad 8 = 2r$$

$$r = 4$$

d)  $A = 96$  → including fountain

$$\text{fountain} \rightarrow A = \pi r^2 \quad 96$$

$$A = \pi(4)^2 = 16\pi$$

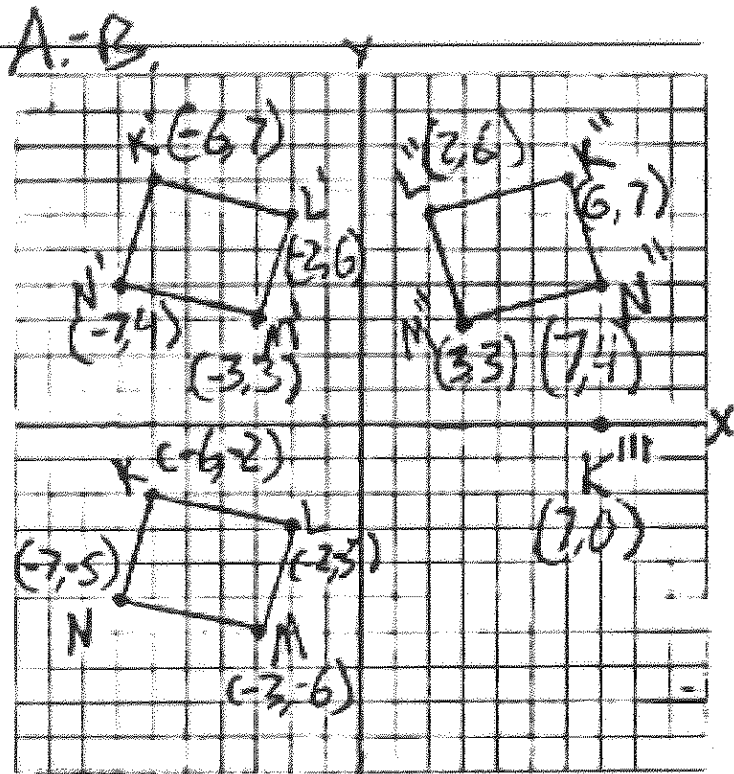
$$A = 16\pi \quad 45.73 \text{ ft}^2$$

The area of the flower bed not including the fountain is

$$45.73 \text{ ft}^2 \text{ or } (96 - 16\pi) \text{ ft}^2$$

C. No it would not be. If  $K''L''M''N''$  was a  $180^\circ$  rotation of  $KLMN$  about the origin, it would have the same numeric coordinates only with all positive values. I.E. The  $180^\circ$  rotation would have the coordinates  $K(6,2); L(2,3); M(3,6); N(7,5)$  which are not the coordinates of  $K''L''M''N''$

D.  $(7,0) = K'''$



$$a) 16^2 + 4^2 = X^2$$

$$b) 16^3 + 4^3 = X^3$$

$$256 + 16 = X^2$$

$$272 = X^2$$

$$16.5 \hat{=} X$$

I used the equation from part a, I squared both values, added them, and finally took the square root to find the value of X. The ladder is about 16.5 feet long.

$$c) h^2 + 7^2 = 32^2$$

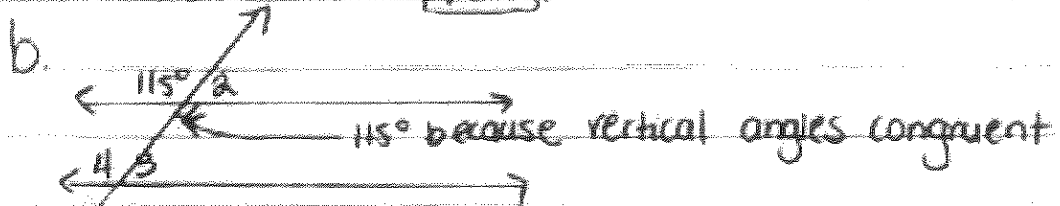
$$h^2 + 49 = 1024$$

$$h^2 = 975$$

$$h = 31.2$$

I used the same basic equation but plugged in the new values. Then I solved for h. The height in this situation is about 31.2 feet.

a. I know that  $\angle 1$  is supplementary with  $110^\circ$ . Thus,  
 $\angle 1 = 180^\circ - 110^\circ = \boxed{70^\circ}$



Therefore  $\angle 4 = 115^\circ$  due to alternate interior angles congruent.

Since  $\angle 3$  and  $\angle 4$  are supplementary,

$$\angle 3 = 180 - 115 = \boxed{65^\circ}$$

c.  $\angle 1 = 70^\circ$

Because  $\angle 2$  is supplementary with  $115^\circ$ ,

$$\angle 2 = 180 - 115 = 65^\circ$$

Because  $\angle 1$ ,  $\angle 2$ , and  $\angle 7$  are angles of a triangle,

$$\angle 1 + \angle 2 + \angle 7 = 180^\circ$$

$$70^\circ + 65^\circ + \angle 7 = 180^\circ$$

$$\angle 7 = 180 - 135 = 45^\circ$$

$\angle 7$  and  $\angle 6$  are congruent due to vertical angles congruent.

Thus,  $\angle 6 = 45^\circ$ . Therefore,  $\angle 5 = 45^\circ$  because  $\angle 5$  and  $\angle 6$  are congruent due to alternate interior angles congruent.

d.  $\angle 1 = 70^\circ$

Because  $\angle 2$  is supplementary with  $115^\circ$ ,

$$\angle 2 = 180^\circ - 115^\circ = 65^\circ$$

Because  $\angle 1$ ,  $\angle 2$ , and  $\angle 7$  add up to  $180^\circ$ ,  $\angle 7 = 180^\circ - 135^\circ = 45^\circ$

Since  $\angle 7$  and  $\angle 6$  are vertical angles, they are congruent.  $\angle 6 = 45^\circ$