

**Áreas de Quadriláteros e Triângulos:**

1.

Handwritten solution for problem 1:

$$\textcircled{1} \text{ a) } 36 \div 400 = 0,09 \text{ m}^2 \quad \text{R: } 0,09 \text{ m}^2$$
$$\text{b) } l \cdot l \rightarrow l^2 = 0,09 \rightarrow l = \sqrt{0,09} \rightarrow l = 0,3$$
$$p = l \cdot 4 \rightarrow p = 0,3 \cdot 4 \rightarrow p = 1,2 \text{ m} \quad \text{R: } 1,2 \text{ m}$$

R: a)  $0,09 \text{ m}^2$  || b)  $1,2 \text{ m}$

2.

Handwritten solution for problem 2:

Diagram showing a small square with side  $x$  and area  $A = a$ , and a larger square with side  $y$  and area  $A = 2a$ .

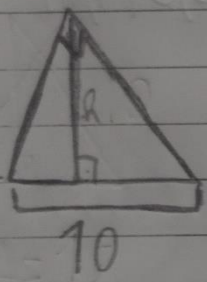
$$\begin{aligned} x^2 &= a \\ y^2 &= 2a \end{aligned} \quad \begin{aligned} y^2 &= 2 \cdot x^2 \\ y &= \sqrt{2x^2} \\ y &= \sqrt{2} \cdot x \end{aligned}$$

R: d)  $y = \sqrt{2} \cdot x$

R: d)  $y = \sqrt{2} \cdot x$

3.

③



$$\frac{10 \cdot h}{2} = \frac{15}{1}$$

$$10 \cdot h \cdot 1 = 15 \cdot 2$$

$$h = \frac{30}{10}$$

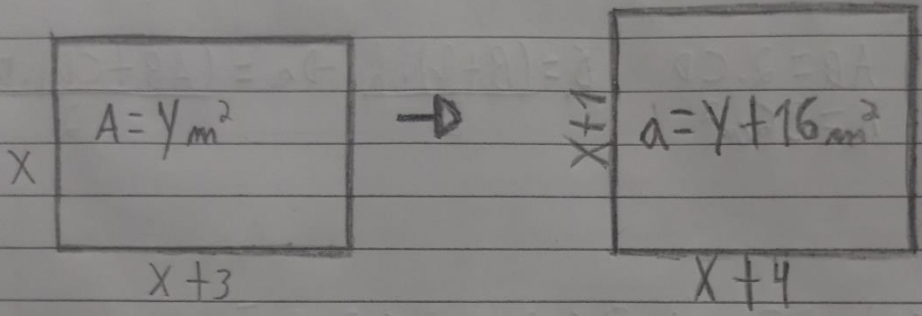
$$h = 3$$

R: d) 3

R: d) 3

4.

④



$$(x+1) \cdot (x+4) = y + 16$$

$$(x+1) \cdot (x+4) = x \cdot (x+3) + 16$$

$$x^2 + 5x + 4 = x^2 + 3x + 16$$

$$2x = 12$$

$$x = \frac{12}{2} = 6$$

$$A = 6 \cdot (6+3)$$

$$A = 6 \cdot 9$$

$$A = 54$$

$$a = 54 + 16$$

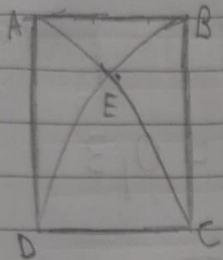
$$a = 70 \text{ m}^2$$

R: 70 m²

R: 70 m²

5.

⑤



$$h = \frac{l \cdot \sqrt{3}}{2} \rightarrow h = \frac{2 \cdot \sqrt{3}}{2} \rightarrow h = \sqrt{3}$$

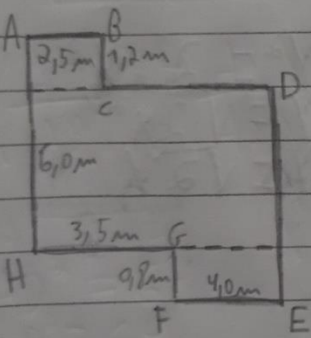
$$A = l \cdot h \rightarrow A = \frac{2 \cdot \sqrt{3}}{2} \rightarrow A = \sqrt{3}$$

R: B)  $\sqrt{3}$

R: b)  $\sqrt{3}$

6.

⑥



$A = 2,5 \cdot 1,2 \rightarrow A = 3 \text{ m}^2$   
 $A = 4,0 \cdot 0,8 \rightarrow A = 3,2 \text{ m}^2$   
 $A = (6,0 - 1,2) \cdot (3,5 + 4,0)$   
 $A = 4,8 \cdot 7,5$   
 $A = 36 \text{ m}^2$

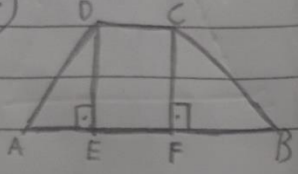
Total =  $36 + 3,2 + 3$   
 Total =  $42,2 \text{ m}^2$

R: E)  $42,2 \text{ m}^2$

R: e) 42,2

7.

⑦



$AB = 2 \cdot CD$   
 $A = 36 \text{ cm}^2$

$A = \frac{(B+b) \cdot h}{2} \rightarrow A = \frac{(AB+CD) \cdot DE}{2}$

$36 = \frac{(2CD + CD) \cdot DE}{2} \rightarrow 36 \cdot 2 = 3CD \cdot DE$

$72 = 3CD \cdot DE \rightarrow CD \cdot DE = 24 \text{ cm}^2$

$CD = \text{base}$   
 $DE = \text{altura}$

(R: E) 24

R: e) 24

**8.**

D S T Q O S  
D L M M J V S

**(8)**

Diagram 1: Square \$ABCD\$ with side length \$6\text{ cm}\$. Point \$J\$ is inside the square. \$AJ = BJ = 5\text{ cm}\$. \$F\$ and \$H\$ are midpoints of \$AD\$ and \$BC\$ respectively. \$FH = x\$.

$$x^2 = 1^2 + 3^2$$

$$x^2 = 1 + 9$$

$$x = \sqrt{10}$$
  

Diagram 2: Right triangle \$AEJ\$ where \$E\$ is the midpoint of \$AD\$. \$AE = 3\text{ cm}\$, \$EJ = 4\text{ cm}\$, and \$AJ = 5\text{ cm}\$. The hypotenuse is labeled \$x\$.

$$x^2 = 4^2 + 3^2$$

$$x^2 = 16 + 9$$

$$x = \sqrt{25}$$

$$x = 5$$
  

Diagram 3: Quadrilateral \$AJCH\$ with \$AJ = JC = 5\text{ cm}\$ and \$AH = CH = 3\text{ cm}\$. Diagonals \$FH\$ and \$JG\$ intersect at their common midpoint. \$FH = 6\text{ cm}\$, \$JG = 2\text{ cm}\$.

$$5^2 = 3^2 + h^2$$

$$25 = 9 + h^2$$

$$h = \sqrt{16}$$

$$h = 4$$
  

$$a = \frac{6 \cdot 4}{2} \rightarrow a = 12$$

$$a = 12\text{ cm}^2$$
  

Diagram 4: Rhombus-like shape formed by triangles \$AJF\$, \$AJH\$, \$CJH\$, and \$CJF\$. Diagonals \$FH\$ and \$JG\$ are perpendicular and bisect each other. \$FH = 6\text{ cm}\$, \$JG = 2\text{ cm}\$.

$$a = b \cdot h \rightarrow a = 6 \cdot 2 \rightarrow a = 12$$

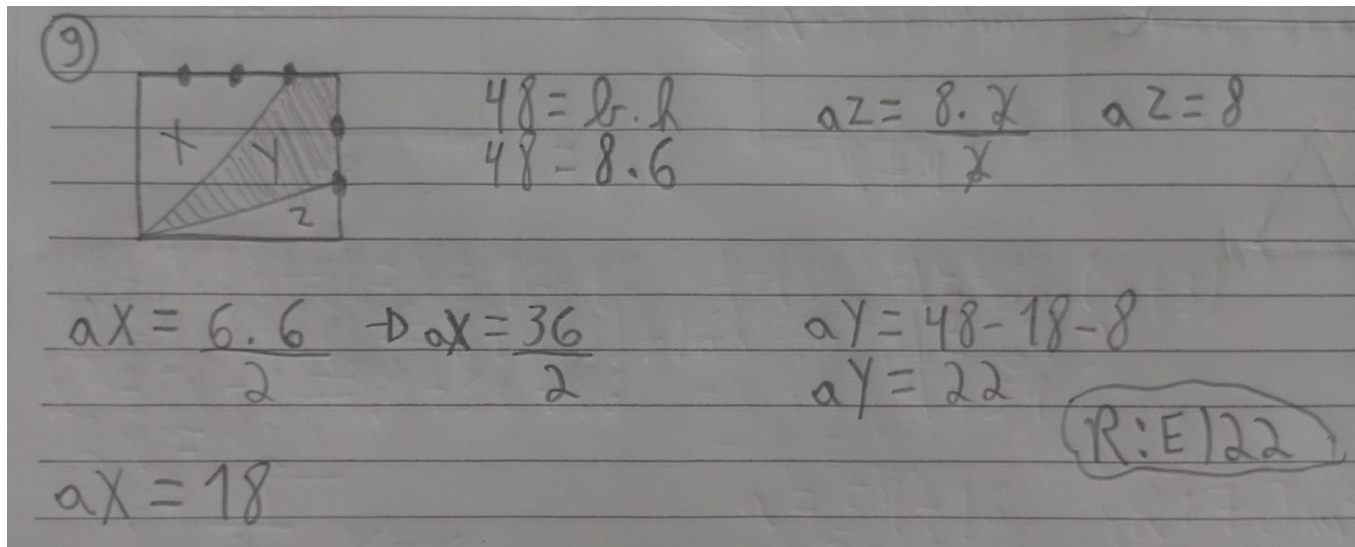
$$\pi = \frac{6}{12} \rightarrow \pi = \frac{1}{2}$$

**R: D | 1 / 2**

**R: d)  $\frac{1}{2}$**

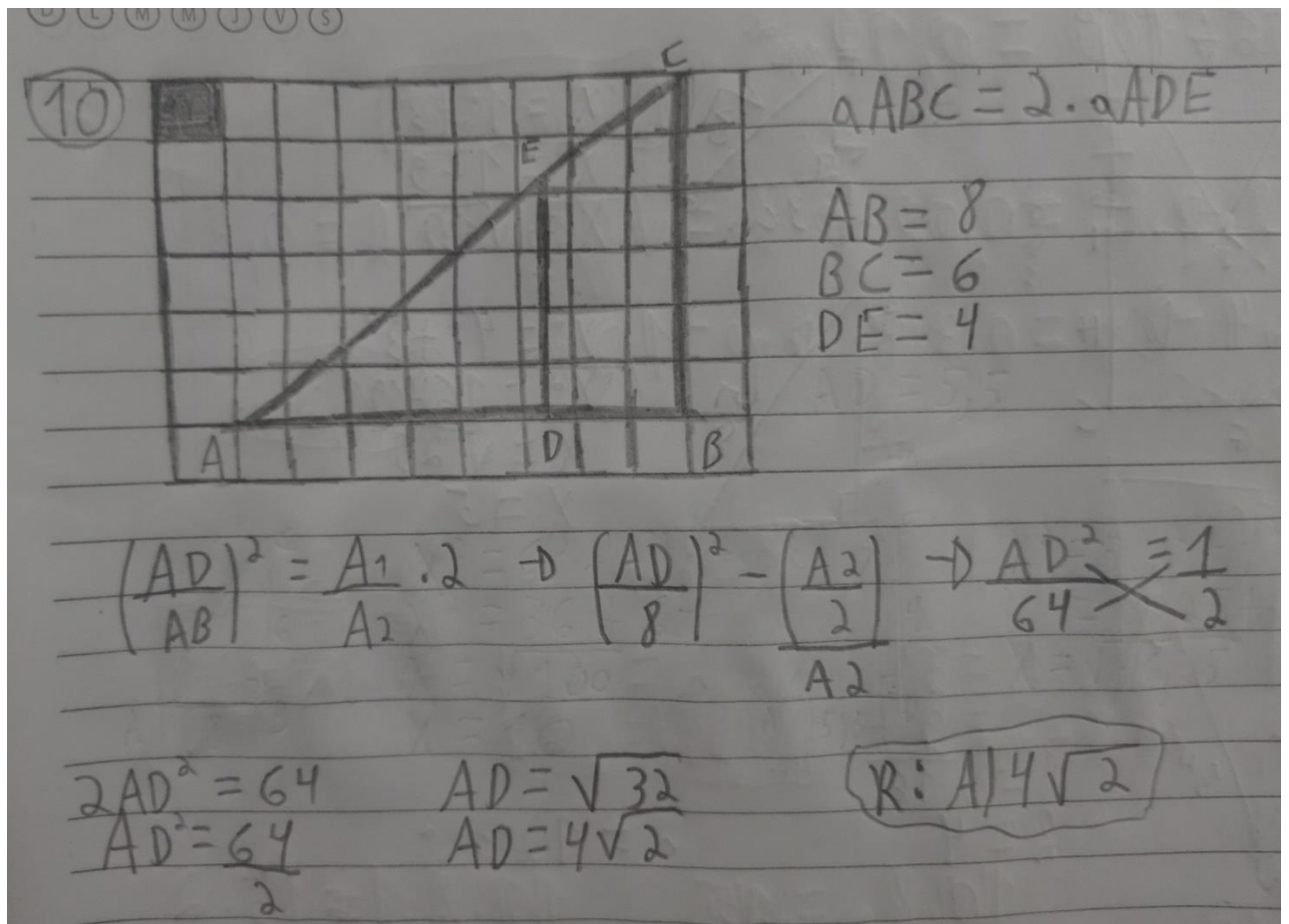


**9.**



**R: e) 22**

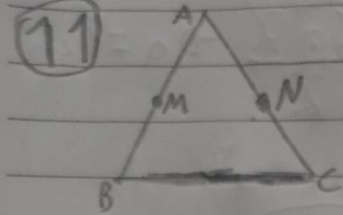
**10.**



**R:** a)  $4\sqrt{2}$

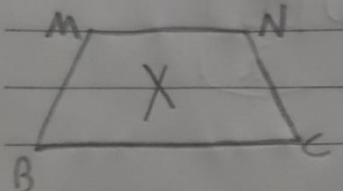
11.

(11)

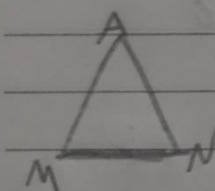


$a = 96 \text{ m}^2$        $\frac{N}{M} = \frac{1}{2} BC$

$\frac{a_{\Delta AMN}}{a_{\Delta ABC}} = \frac{1}{4} \rightarrow a_{\Delta AMN} = \frac{1}{4} \cdot a_{\Delta ABC}$



$a_{\Delta AMN} = \frac{1}{4} \cdot 96 \rightarrow a_{\Delta AMN} = 24$



$X = a_{\Delta ABC} - a_{\Delta AMN}$   
 $X = 96 - 24$   
 $X = 72 \text{ m}^2$

**R: 72 m<sup>2</sup>**

R: 72m<sup>2</sup>