Tarefa Básica - Triângulo retângulo

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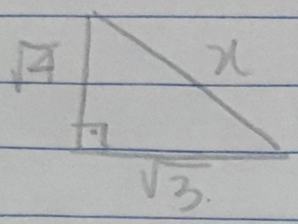
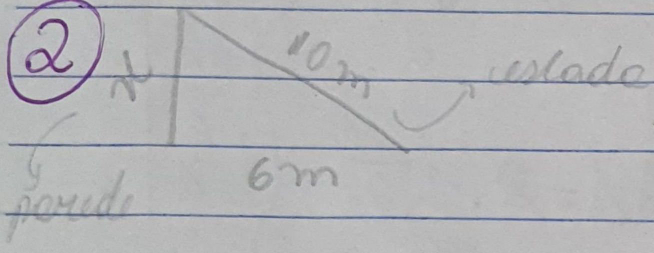
1.



$$x^2 = (\sqrt{4})^2 + (\sqrt{3})^2$$
$$x^2 = 4 + 3$$
$$x^2 = 7$$
$$\boxed{x = \sqrt{7}}$$

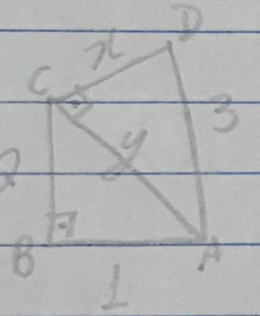
alternativa b

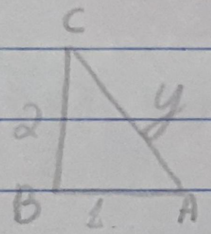
2.



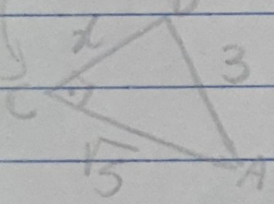
$$10^2 = x^2 + 6^2$$
$$x^2 = 100 - 36$$
$$x^2 = 64$$
$$x = \sqrt{64} = \boxed{8\,m}$$

3.





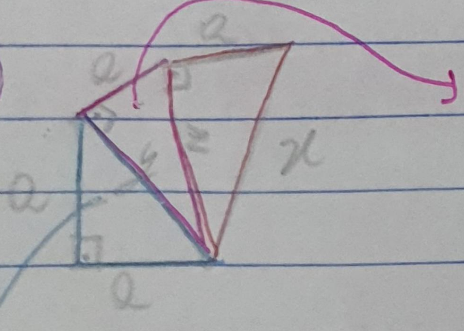
$$y^2 = 2^2 + 1^2$$
$$y^2 = 4 + 1$$
$$y = \sqrt{5}$$



$$3^2 = x^2 + (\sqrt{5})^2$$
$$x^2 = 9 - 5$$
$$x = \sqrt{4} = \boxed{2}$$

alternativa b

4.

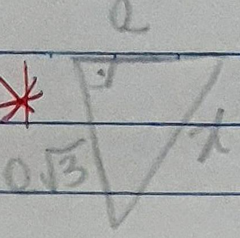


$$z^2 = a^2 + (a\sqrt{2})^2$$
$$z^2 = a^2 + 2a^2$$
$$z^2 = 3a^2$$
$$z = \sqrt{3a^2}$$
$$z = a\sqrt{3}$$

$$y^2 = a^2 + a^2$$
$$y^2 = 2a^2$$
$$y = \sqrt{2a^2}$$
$$y = a\sqrt{2}$$

AFAPEL

*



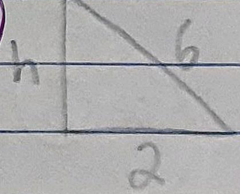
$x^2 = a^2 + (a\sqrt{3})^2$

$x^2 = a^2 + 3a^2$

$x^2 = 4a^2$ — alternativa (b)

$x = \sqrt{4a^2} = \boxed{2a}$

(5)



h = altura ; b (base) = 2

$6^2 = 2^2 + h^2$

$h^2 = 36 - 4$

$h = \sqrt{32}$

$h = \sqrt{2^2 \cdot 2^2 \cdot 2}$

$h = 2 \cdot 2\sqrt{2}$

$h = 4\sqrt{2}$

$A\Delta = \frac{b \cdot h}{2}$

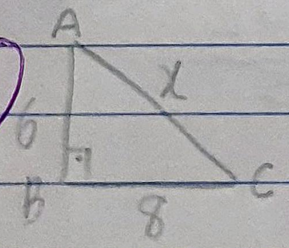
$A\Delta = \frac{\cancel{2} \cdot 4\sqrt{2}}{\cancel{2}}$

$A\Delta = \boxed{4\sqrt{2}}$

32	2
16	2
8	2
4	2
2	2
1	$2^2 \cdot 2^2 \cdot 2$

alternativa (c)

(6)



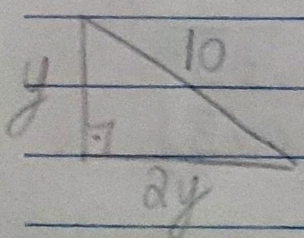
$x^2 = 6^2 + 8^2$

$x^2 = 36 + 64$

$x = \sqrt{100} = 10$

novo triângulo: $\overline{AC} = 10$, y = menor cateto

2y = maior cateto



$10^2 = y^2 + (2y)^2$

$100 = y^2 + 4y^2$

$5y^2 = 100$

$y^2 = \frac{100}{5}$

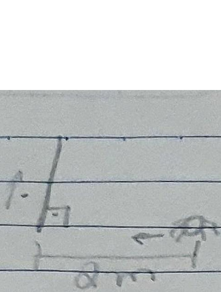
$y = \sqrt{20}$

$y = \sqrt{2^2 \cdot 5}$

$y = \boxed{2\sqrt{5}}$

alternativa (a)

(7)



V aranha $= 16$ cm/s
V formiga $= 10$ cm/s
tempo $= 5$ s

aranha: 1 segundo — 16 cm
5 segundos — x

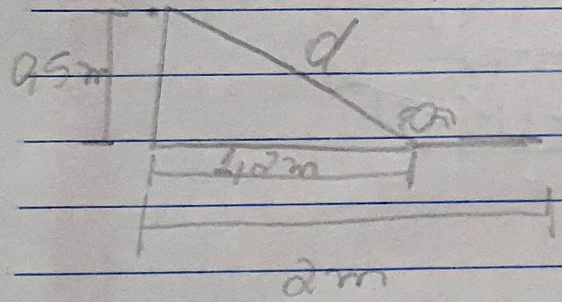
$x = 16 . 5$
$x = 80$ cm

↳ Aranha andou 80 cm → 0,8 m

formiga: 1 segundo — 10 cm
5 segundos — y

$y = 5 . 10$
$y = 50$ cm

↳ formiga subiu 50 cm → 0,5 m



d = distância entre formiga e aranha

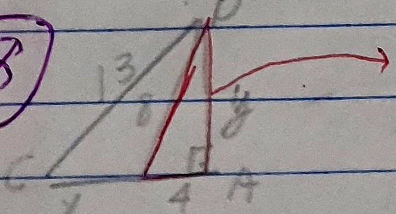
$d^2 = 0,5^2 + 1,2^2$
$d^2 = 0,25 + 1,44$
$d^2 = 1,69$

$d = \sqrt{\frac{169}{100}}$

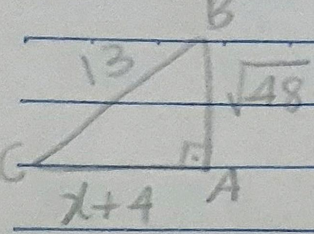
alternativa (b)

$d = \frac{\sqrt{169}}{\sqrt{100}} = \frac{13}{10} = \boxed{1,3\text{ m}}$

(8)



$8^2 = y^2 + 4^2$
$y^2 = 64 - 16$
$y = \sqrt{48}$



$$13^2 = (\sqrt{48})^2 + (x+4)^2$$
$$169 = 48 + x^2 + 8x + 16$$
$$x^2 + 8x + 64 - 169 = 0$$
$$x^2 + 8x - 105 = 0$$

$$\Delta = 8^2 - 4.1.(-105)$$
$$\Delta = 64 + 420$$
$$\Delta = 484$$

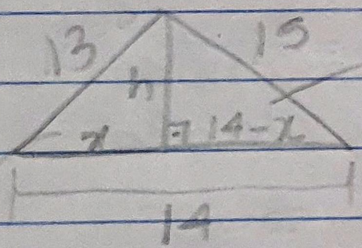
$$x_1 = \frac{-8+\sqrt{484}}{2.1}$$
$$x_1 = \frac{-8+22}{2}$$
$$x_1 = \frac{14}{2} = \boxed{7m}$$

alternativa d

$$x_{11} = \frac{-8-22}{2}$$
$$x_{11} = -\frac{30}{2} = -15m$$

(lado do triângulo não pode ser negativo)

9



$$15^2 = h^2 + (14-x)^2$$
$$h^2 = 225 - (14-x)^2$$

$$13^2 = h^2 + x^2$$
$$169 = 225 - (14-x)^2 + x^2$$
$$169 = 225 - (196 - 28x + x^2) + x^2$$
$$169 = 225 - 196 + 28x - x^2 + x^2$$
$$169 = 29 + 28x$$
$$28x = 169 - 29$$
$$x = \frac{140}{28} = 5$$

$$13^2 = h^2 + x^2$$
$$h^2 = 169 - (5)^2$$
$$h^2 = 169 - 25$$
$$h = \sqrt{144}$$
$$h = \boxed{12}$$

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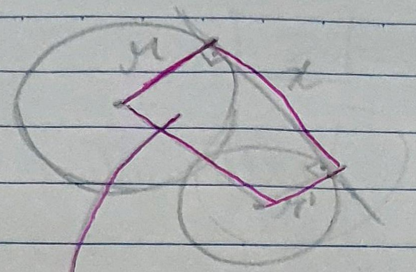
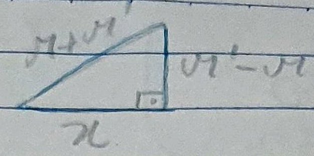
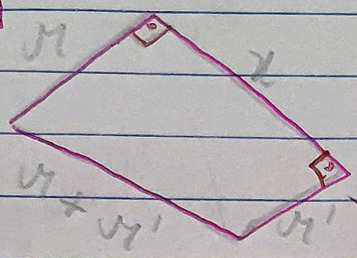
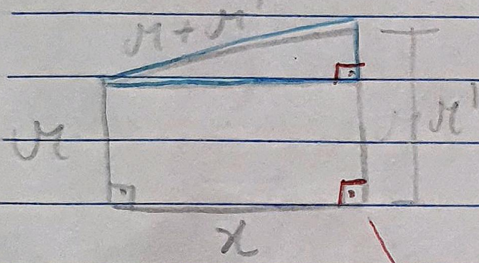




$$(r+r')^2 = x^2 + (r'-r)^2$$
$$r^2 + 2.r.r' + (r')^2 = x^2 + (r')^2 - 2.r.r' + r^2$$
$$x^2 = \cancel{r^2} + 2r.r' + \cancel{(r')^2} - \cancel{(r')^2} + 2r.r' - \cancel{r^2}$$
$$x^2 = 4r.r'$$
$$x = \sqrt{4.r.r'}$$
$$x = \boxed{2\sqrt{r.r'}}$$

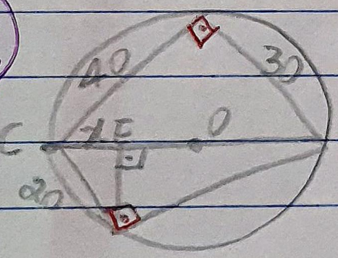




pontos de tangente formam ângulos de 90° com os raios das circunferências

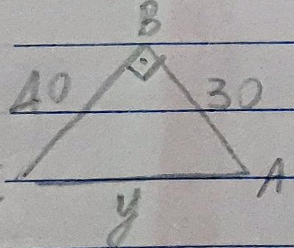
ângulos correspondentes = congruentes

11

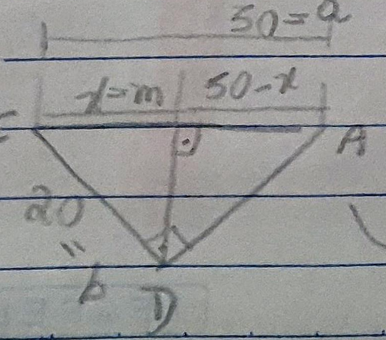


$\overline{CE} = x$

* triângulos inscritos em circunferências com o diâmetro como 1 dos seus lados possuem 1 ângulo de 90°.



$$y^2 = 40^2 + 30^2$$
$$y^2 = 1600 + 900$$
$$y = \sqrt{2500}$$
$$y = 50$$



$\hookrightarrow b^2 = m.a$ (relações métricas no triângulo retângulo)

$b^2 = m \cdot a$

$20^2 = x \cdot 50$

$400 = x \cdot 50$

$\rightarrow x = \frac{40\cancel{0}}{5\cancel{0}} = \boxed{8}$

01

↳ alternativa C