2.6 Further Problems Leading to Quadratic Equations *(Ex. 2I)*

A. Numbers

3. Let m, m+1, m+2 be the three numbers.

$(m+1)(m+2) = m+17$

$= m+17$

$= 0$

$= 0$

$m =$ or $m =$

$\therefore$ the three numbers are

4. Let m, m+1 be the 2 numbers.

$\frac{1}{m}+\frac{1}{m+1} = \frac{7}{12}$

$= \frac{7}{12}$

$= 0$

$m =$ or $m =$

$\therefore$ the two consecutive numbers are

5. Let m, m+2 be the 2 integers.

$m(m+2) + (m+(m+2)) = 98$

$= 98$

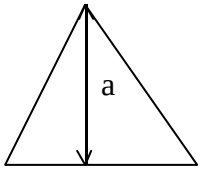
$= 0$

$m =$ or $m =$

$\therefore$ the two integers are or

B. Length (6, 7, 8, 9, 17, 18)

2.



Area $= \frac{1}{2}\times a\times b$

$12 = \frac{1}{2}\times a\times b$ ..... (1)

$a + 3 = b$ ..... (2)

Sub (2) into (1)

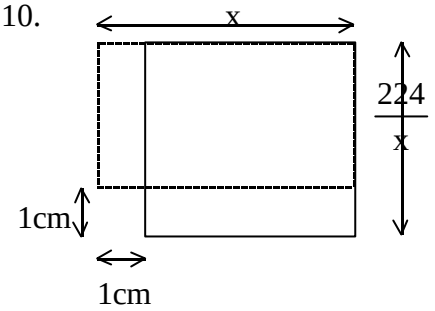
$12 = \frac{1}{2}\times(\quad)\times b$

$0 =$

$\therefore b =$ or $b =$

B. ***Length*** (cont.)

10.



Let the length of the original rectangle be x and breadth be $\frac{224}{x}$.

$\because$ new breadth = old breadth + 1

$\therefore$ $\frac{224+1}{x-1} = \frac{224}{x} + 1$

$225x = (x - 1)(224 + x)$

$0 =$

$\therefore$ x = or x =

C. ***Speed*** (19)

$$\text{Speed} = \frac{\text{distance travelled}}{\text{time taken}}$$

14. Let running speed be x,
$\therefore$ walking speed be x - 3

Total time taken = 1 = $\frac{6}{x} + \frac{2}{x-3}$

=

= 0

$\therefore$ x = or x =

$\therefore$ the runnung speed =

15. Let x be the speed of the stream
$\therefore$ speed of boat travelling upstream =
speed of boat travelling downstream =
Total time taken

5 =

$\therefore$ the speed of the stream is 4 km/h.

C. ***Speed*** (cont.)

16. Let x be the time taken for the longer route.

∴ speed of cyclist in longer route =

speed of cyclist in shorter route =

Total time taken

∴ time taken is 2 hr.

D. ***Money*** (1, 13)

11. Let no. of shares he sold be x.

price of original share $= \frac{720}{x+20}$

price of share a month later $= \frac{720+80}{x}$

$\therefore \quad \frac{720+80}{x} = \frac{720}{x+20} + 8$

$800\,(x+20) = (\,720 + 8\,(x+20)\,)\,x$

$0 = x^2 + 10x - 2000$

∴ x = or x =

∴ no. of shares =

price =

12. Let x be the no. of articles she purchased.

original price per articles $= \frac{96}{x}$

new price per articles $= \frac{96}{x+4}$

$\therefore \quad \frac{96}{x} = \frac{96}{x+4} + 4$

$96\,(x+4) = (\,96 + 4\,(x+4)\,)\,x$

$0 =$

∴ x = or x =

∴ she purchased ___ articles.