

End of Unit Test Name: Answers
Forming and Solving Equations - HIGHER



1) Solve $\frac{y+1}{3} + \frac{y-2}{2} = 2$

$2(y+1) + 3(y-2) = 12$

$2y + 2 + 3y - 6 = 12$

$\frac{5y}{5} = \frac{16}{5} = 3.2$

$y = 3.2$

(Total 4 marks)

2) Rearrange $p = \frac{4-r}{r}$ to make r the subject.

$rp = 4 - r$

$rp + r = 4$

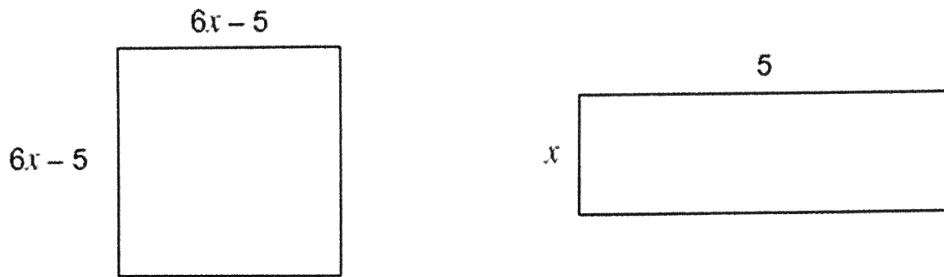
$r(p+1) = 4$

$r = \frac{4}{p+1}$

Answer $r = \frac{4}{p+1}$

(Total 3 marks)

- 3) The square and the rectangle have the same area. All lengths are in centimetres. Not drawn accurately.



- (a) Show that $36x^2 - 65x + 25 = 0$

$$\dots\dots (6x - 5)(6x - 5) = 5x$$

$$\dots\dots 36x^2 - 60x + 25 = 5x$$

$$\dots\dots 36x^2 - 65x + 25 = 0$$

- (b) $36x^2 - 65x + 25 = 0$
Work out the value of x .

	$9x$	-5
$4x$	$36x^2$	$-20x$
-5	$-45x$	$+25$

$$36 \times 25 = 900$$

	<u>900</u>
1	900
⋮	⋮

$$\dots\dots (4x - 5)(9x - 5) = 0$$

$$\dots\dots x = \frac{5}{4} \text{ or } \frac{5}{9} \leftarrow \text{too small.}$$

$$15 \quad 60$$

$$18 \quad 50$$

$$\textcircled{20 \quad 45}$$

$$x = \dots\dots \frac{5}{4}$$

(4)
(Total 6 marks)

- 4) You are given that $(x+a)^2 - 7 \equiv x^2 + 10x + b$
Work out the values of a and b .

$$10 \div 2 = 5 \quad \therefore a = 5$$

$$\begin{aligned}(x+5)^2 - 7 &= x^2 + 10x - 25 - 7 \\ &= x^2 + 10x - 32\end{aligned}$$

$$a = 5$$

$$b = -32$$

(Total 2 marks)

- 5) Solve the simultaneous equations

$$y = x^2 - 6x - 20$$

$$y = 4 - x$$

You **must** show your working.

$$x^2 - 6x - 20 = 4 - x$$

$$x^2 - 5x - 24 = 0$$

$$(x-8)(x+3) = 0$$

$$x = 8 \text{ or } -3$$

$$\text{If } x = 8, y = 4 - 8 = -4$$

$$\text{If } x = -3, y = 4 - (-3) = 7$$

Answer $(8, -4)$ and $(-3, 7)$

(Total 5 marks)

(Total for test = 20 marks)