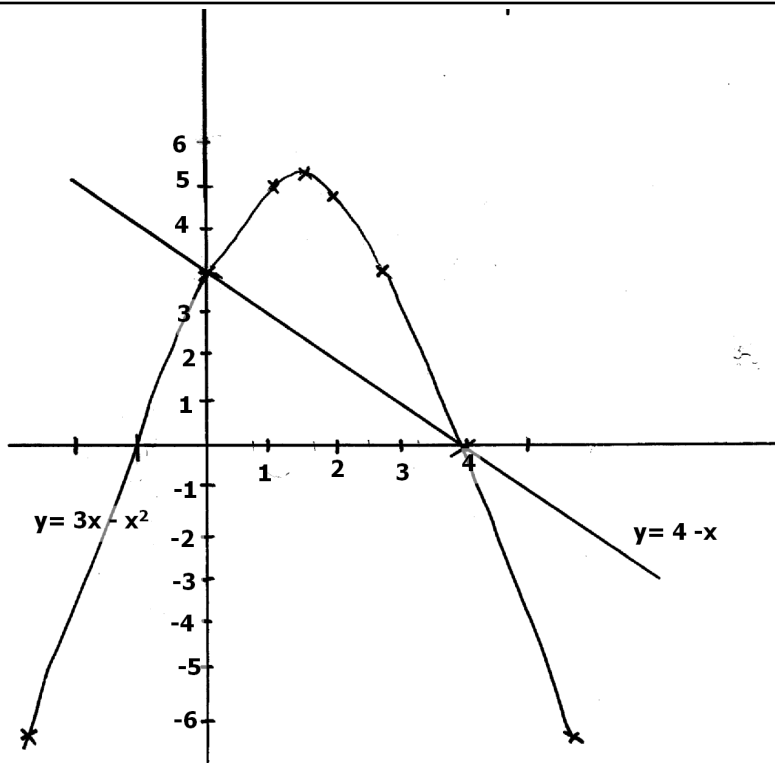


2. Linear

| | | | |
|------------------|--|--|--|
| <p>1</p> | <p>(0,3), (3,0)</p> $\frac{3-0}{0-3} = -1$ $\frac{y-0}{x-3} = -1 \quad y = -x+3$ $y < -x+3$ $x \geq 1$ $y \geq 0$ | <p>B₁ B₁ B₁</p> | |
| <p>2.</p> | <p>(a) $x \geq -4$</p> <p>(b) $y = -x$</p> $y + x \leq 0$ <p>(c) Grad = $\frac{0 - 9}{8 - 9}$</p> $= \frac{3}{4}$ $y = mx + c$ $0 = \frac{3}{4}(8) + c$ $c = -6$ $y = \frac{3}{4}x - 6$ $y - \frac{3}{4}x > -6$ | <p>B1 B1 M1 M1</p> | |
| | | <p>04</p> | |
| <p>3.</p> | $2x + 3 \geq 5x - 3$ $-3x \geq -6$ $x \leq 2$ $5x - 3 > -8$ $5x > -5$ $x > -1$ $-1 < x \leq 2$ <p>Integral values 0, 1, 2</p> | <p>B1 B1 B1</p> | |
| | | <p>03</p> | |
| <p>4.</p> | <p>a) $4x - 9 < 6 + x$</p> $x < 5$ $8 - 3x < x + 4$ | <p>M1</p> | |

| | | | |
|----|---|---|---------------------------------------|
| | $1 < x$ b) $1 < x < 5$ | M1 A1 | |
| 5. | $-2x + 1 < x - 5$ $-3x < -6$ $x > 2$ $x - 5 < 5 - x$ $2x < 10$ $x < 5$ $\therefore 2 < x < 5$ | | M ₁ $\frac{A_1}{2}$ |
| 7 | $-3x + 2 < x + 6$ $x > 1$ $x + 6 \leq 17 - 2x$ $x \leq 3\frac{2}{3}$ 2, 3 | B ₁ B ₁ <u>B₁</u> 3 | |
| 8. | $\frac{3a + 2}{4} \leq \frac{2a + 3}{5} \leq \frac{4a + 15}{6}$ $\frac{3a + 2}{4} \leq \frac{2a + 3}{5}$ $5(3a + 2) \leq 4(2a + 3)$ $15a + 10 \leq 8a + 12$ $7a \leq 2$ $a \leq 0.2857$ $\frac{2a + 3}{5} \leq \frac{4a + 15}{6}$ $6(2a + 3) \leq 5(4a + 15)$ $-8a / -8 \leq 57 / -8$ $a \leq -7.125; -7.125 \leq a \leq 0.28$ Integral values -7, -6, -5, -4, -3, -2, -1 | 1 M1 B1 B1 | |
| | | 03 | |

9. $\frac{1}{2}x - 2 \leq 3 - 2$; $3x - 2 < +\frac{1}{2}x$
 $0 \leq \frac{7}{2}x$ $\frac{5}{2}x < 4$



B1

B1

B1

B1

b) turning point 1.5, 6.25

c) i) Line $y = 0$ $x = -1$ or $x = 4$
 $x = -1$ or $x = 4$

ii) $4 + 3x - x^2 = y$

$$\frac{4x - x^2}{4 - x} = 0$$

| | | |
|---|---|---|
| x | 0 | 4 |
| y | 4 | 0 |

$x = 0$ or $x = 4$

10

$$35s + 15t = 14750$$

$$\underline{9s + 15t = 8250}$$

$$26s = 6500$$

$$s = 250$$

$$t = \frac{2750 - 3(250)}{5} = 400$$

$$2t + 2s = 2(400) + 2(250) \\ = \text{shs. } 1,300$$

17. Let the cost of a biro be b

Pencil be p

$$2b + 5p = 120 \times 3$$

$$3b + 2p = 114 \times 2$$

$$6b + 15p = 360$$

$$\underline{6b + 4p = 228}$$

$$11p = 132$$

$$P = 121$$

$$2b + 60 = 120$$

$$2b = 60$$

$$b = 30$$

\therefore The cost of 1 biro is 30/=

The cost of 1 pencil is 12/=

18. Let son's present age be n yrs

Father's age is $2n$ yrs

Ten years ago: son's age $\Rightarrow n - 10$

Father's age $\Rightarrow 2n - 10$

Son's present age = 30yrs

Father's present age = $2 \times 30 = 60$ yrs

19. $2x + 21 > 15 - 2x$

$$4x > 0.6$$

$$x > -1 \frac{1}{2}$$

$$\Rightarrow -1 \frac{1}{2} < x \leq 3$$

Values are $-1, 0, 1, 2, 3$.

$$15 - 2x \geq x + 6$$

$$-3x \geq -9$$

$$x \leq 3$$

20. $y = -2x + 4$

gradient of h line is $\frac{1}{2}$

$$\text{Equation } \frac{y+4}{x+1} = \frac{1}{2}$$

$$2y + 8 = x + 1$$

$$2y - x + 7 = 0$$

21. $2s + 3t = 1750$

$$3s + 2t = 1500$$

$$2t = 1500 - 600$$

$$t = 450$$

$$4s + 6t = 3500$$

$$9s + 6t = 4500$$

$$5s = 1000$$

$$s = 200$$

$$\text{Shirt} = \text{sh } 200$$

Trouser = sh 450

22. $Let\ r = 3.818181\dots$
 $100r = 381.818181$
 $99r = \underline{378} = \underline{42}$
 $\frac{99}{99} = \frac{11}{11}$
 $= 3^9/11$

23. (a) *Let cost of pencils be x and biro pens to be y*
 $4x + 6y = 66$
 $2x + 5y = 51$

$$4x + 6y = 66$$

$$4x + 10y = 102$$

$$4y = 96$$

$$y = 24$$

Correct substitution

$$\therefore x = 3$$

Pencils = shs.9
Biro pens = 3

(b) $9p + 3b = 228\dots(i)$
 $b - y = 4$
 $b = 4 + r \dots\dots\dots(ii)$
substituting for b in \dots\dots\dots(i)
 $p^2 + 5p - 288 = 0$

$$p = \frac{-5 \pm \sqrt{25 - 4 \times 1 \times -228}}{2 \times 1}$$

$P = 13$ (to the nearest whole no.)
 $b = 4 + 13 = 17$

24. $3x - 2(x + 2) = 21$
 $X = 25$
Large No = $25 + 2 = 27$
 \therefore *product* = $25 \times 27 = 695$

25. $x - 20 + 3x = 180^\circ C$ **Attempt to get x by using $\sum e = 180^\circ$**
 $4x = 200$ **$e = \frac{(2n-4)90}{n}$**
 $x = 50^\circ$ **number of sides**

26. $5x + 4y = 6160$
 $4(3x + y) = 2800$
 $-7x = -5040$
 $x = 720$
 $y = 640$
 $4(720) + 2(640) = 4160$

27. $2x + 3y = 390$
 $5x + 2y = 810$
 $15x + 6y = 2430$
 $\underline{4x + 6y = 780}$

$$11x = 1650$$

$$x = 150$$

A pair of trouser = sh150

A shirt = sh30