Skip #20, #21(ii)
Know h=d for optimal cylinder

1. $-2(-5) = 10$ (A)
2. $6^{4+3} = 6^7$ (B)
3. $5^{-3-2} = 5^{-5}$ (D)
4. $5x+20-2x-14$ (b)
   $= 3x+6$
5. $3y = 2x-60$
   $y = \frac{2}{3}x - 20$ (C)
6. $4 - \frac{1}{2}(2) = 4-1 = 3$ (B)
7. $2x+3$ (C)
8. Pyth. Th^m (C)
9. (C)
10. $\Delta x = 1$, $\Delta y = 11$ (C)
11. ---- > (A)
12. (A)
13. (C)
14. (B)
15. (B)
16. (C) $10x = 360$ $2x = 72°$
17. (A) 10×180
18. (D) $4\pi(10)^2 = 314.15 \times 4$
19. (B) $3600 \div 4 = 900$ 628.3 / 1256.6
20. $h=2r$, $h=d$ $1000cm^3 = 2\pi r^3$ $r = \sqrt[3]{\frac{500}{\pi}}$ $SA = 6\pi r^2$

21. i) $(-3)^3 = -27$ ~~ii)~~ $-8(5-12)^\circ \div 4^2 = -8(1) \div 16 = -\frac{1}{2}$

22. i) $30x^3y^2$ ii) $x-7-3x+18 = -2x+11$

23. i) $3x-7=17$
    $+7 \quad +7$
    $3x = 24$
    $x = 8$

ii) $A = \pi r^2$
$r = \sqrt{\frac{A}{\pi}}$

24. Indep. Calories Consumed
Dep. Weight Gain

25. $\frac{4}{26} = \frac{x}{40}$
$26x = 160$
$\frac{26}{26} \quad \frac{26}{26}$
$x = \frac{80}{13}$

26. $\frac{28}{100} \times 540$ or $\frac{28}{100} = \frac{x}{540}$
$= \frac{756}{5}$
$154 \times 14 = 216 + 540 = 756$

27 a) $-xy + 6z^3$

b) $-5x^2 + x - 8 - 3x^2 + 9x + 4$
$= -8x^2 + 10x - 4$

c) $3(6x-8)$
$= 18x - 24$

d) $35x^2 - 5xy$

28. a) $12x - 24 = 4x + 7$

$-4x + 25 = -4x + 25$

$8x = 32$

$\boxed{x = 4}$

b) $4x - 8 - x - 3 = x - 14$

$3x - 11 = x - 14$

$-x + 11 = -x + 11$

$2x = -3$

$\boxed{x = \frac{-3}{2}}$

c) $\frac{x}{3} + \frac{7}{1} = \frac{2}{5}$ LCM 15

$\frac{15}{3}(x) + \frac{15}{1}(7) = \frac{15}{5}(2)$

$5x + 105 = 6$

$-105 = -105$

$5x = -99$

$\boxed{x = \frac{-99}{5}}$

d) $\frac{15}{60}(5a) - \frac{20}{60}(2a - 4) = \frac{12}{60}(a + 3)$ $+\frac{30}{60}(\frac{1}{2})$

$75a - 40a + 80 = 12a + 36 + 90$

$35a + 80 = 12a + 126$

$-12a - 80 = -12a - 80$

$23a = 46$

$\boxed{a = 2}$

29. $y = \frac{3}{5}x - 1$

$-y = -y$

$\frac{3}{5}x - y - 1 = 0$

$\times 5$ $\boxed{3x - 5y - 5 = 0}$

30. $m = \frac{-7+5}{1-3}$

$= \frac{-2}{-2}$

$\boxed{m = 1}$

31a) $m = 3$ $b = -9$

$\boxed{y = 3x - 9}$

b) $m = -\frac{5}{4}$ $b = 12$

$\boxed{y = -\frac{5}{4}x + 12}$

c) $m = \frac{-2-7}{5-2}$

$m = -\frac{9}{3}$

$m = -3$ $(2, 7)$ x y

$y = mx + b$

$7 = -3(2) + b$

$7 = -6 + b$

$+6 = +6$

$13 = b$

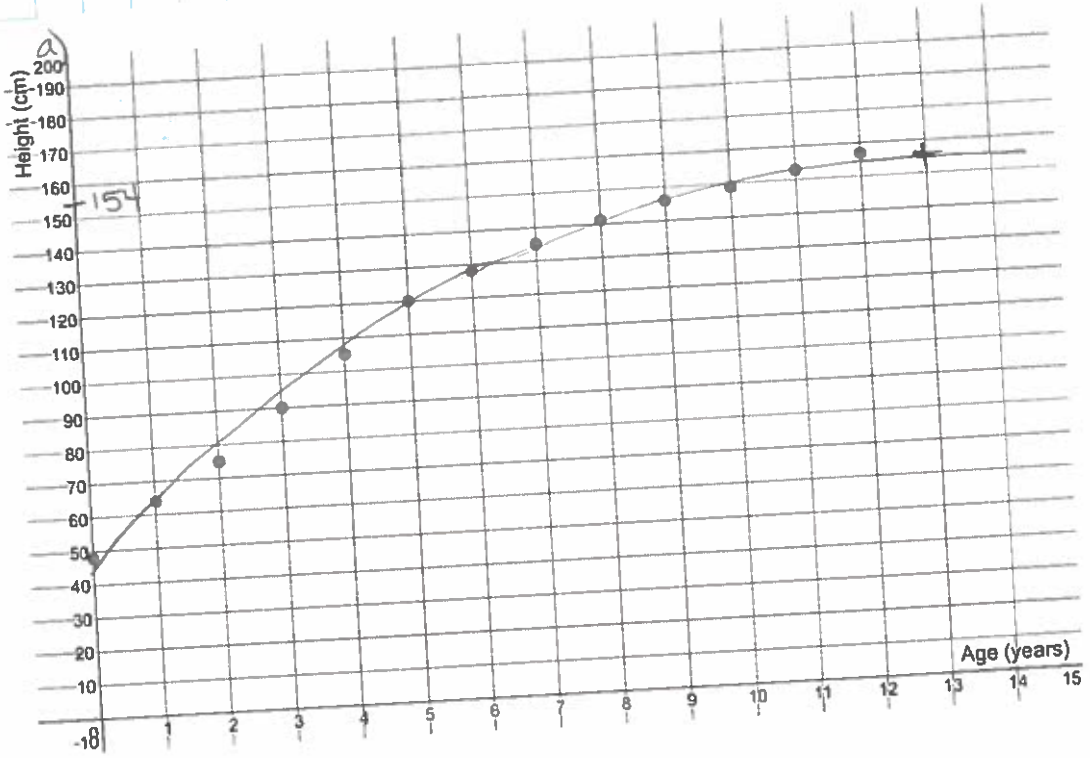
$\boxed{y = -3x + 13}$

d) $\boxed{x = -12}$

32.

Segment of Graph	Speed	Direction
AB	• Constant speed $\frac{40}{20} = 2$ m/s	• began at home moving away from home
BC	• stopped 0 m/s for 40 seconds	• no movement
CD	• gradually speeding up	• moving away from home
DE	• stopped 150 m from home for 40 seconds speed 0 m/s	• no movement
EF	• constant speed 150 metres in 40 seconds 3.75 m/s.	• switched direction • moving toward home

33.



b) non-linear *as time passes, the graph increases less and less each year.

c) see graph

d) 154 cm extrapolation (beyond last plotted point)

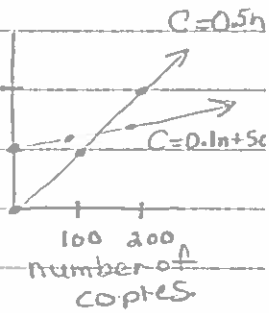
34. a) The initial cost is $50. (Cost is $50 with no copies made)

b) The variable cost is 10¢/copy

c) $0.1n + 50 = 80$

$0.1n = 30$

$n = 300$ copies

d) 

$m = 0.1$ $\quad m = \frac{10}{100}$ $\quad m = 0.5$ $\quad m = \frac{50}{100}$

d, e) on graph

f) (125, $62.50) 125 copies cost $62.50 at both locations.

35. a) $y = 80°$ SA

$z = 80°$ TPT-AA (Z-pattern)

OR TPT-CIA (C-pattern)

$x = 50°$ (ASTT)

OR TPT-CIA ($z + 50° + x = 180°$)

b) $x + x + (x-30) + (x-40) = 360$

$4x - 70 = 360$

$+70 = +70$

$4x = 430$

$x = \frac{430}{4}$

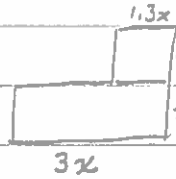
$x = 107.5$

36. a) $3x + 2x + 1.3x + x + 1.7x + x$

$= 10x$

b) $10x = 50.6$

$x = 5.06$ cm

37. 

$A = 1.3x(x) + 3x(x)$

$A = 1.3x^2 + 3x^2$

$A = 4.3x^2$

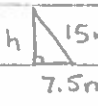
$4.3x^2 = 300$

$x^2 = \frac{300}{4.3}$

$x^2 = 230.76923$

$x \doteq 15.191$ cm

38. 



$h^2 = 225 - 56.25$

$h = \sqrt{168.75}$

$h = 12.99$

$V = \pi r^2 h \div 3$

$V = \pi(7.5)^2(12.99) \div 3$

$V = 765.\ m^3$

39. a) $A = 4\pi(5)^2$
$A = 100\pi$
$A = 314.159$
$A_{ball} \doteq 314\ cm^2$

b) $A_{box} = 6x^2$
$= 6(10)^2$
$= 600$

c) $V = 10^3 - 4\pi(5)^3 \div 3$
$V = 476.4\ cm^3$
Empty Space

40. Minimum SA is cube
$x^3 = 1200$
$x = \sqrt[3]{1200}$
$x = 10.6265...$
$x \doteq 10.63\ cm$
$\therefore$ 10.63cm x 10.63cm x 10.63cm