

Answers – Your Turn!! – Number & Algebra

NA1 HCF LCM

- a) 24 b) 4

NA2 Primes

- a) Primes 2 3 5 7 11 13 17 19 23
b) $2 \times 2 \times 3 \times 3 \times 5 \times 7$

NA3 Negatives

- a) 24 b) -108
c) -5 d) 2
e) 11

NA4 Substitution

- a) Ex1)

$$y = 3 \times 2 + 7$$

$$= 6 + 7 = 13$$

Ex2)

$$y = 3(2)^2 - 7(2) + 2$$

$$= 3 \times 4 - 14 + 2$$

$$= 12 - 12 = 0$$

- b) Ex1)

$$y = 3(-3) + 7$$

$$= -9 + 7$$

$$= -2$$

Ex2)

$$y = 3(-3)^2 - 7(-3) + 2$$

$$= 3 \times 9 + 21 + 2$$

$$= 27 + 23$$

$$= 50$$

NA5 Index Laws

- a) -
b) i) $3^{6-2} = 3^4$
ii) $4^{4 \times 6} = 4^{24}$
c) -
d) i) $e^{5-2} = e^3$
ii) $m^{8 \times 4} = m^{32}$

NA6 Significant Figures

- a) 3.1 2sf b) 3.14 3sf
c) 3.141 4sf d) 0.34 2sf
e) 0.003406 4sf

NA7 SIF

- a) 0.0000245 b) 31400
c) 1.2×10^2 (also correct 1.20×10^2)
d) 1.05×10^{-2}
e) & f) self check

NA8 Ratio

- a) $78 \div 6 = 13$, $3 \times 13 = 39$, $2 \times 13 = 26$, $1 \times 13 = 13$
b) 2:43
c) $\frac{3}{8}$

NA9 Fractions

- a) $\frac{1}{4}$ b) $\frac{1}{4}$
c) $\frac{19}{40}$ d) $\frac{5}{7}$
e) $\frac{5}{8} \times \frac{9}{5} = \frac{1}{8} \times \frac{9}{1} = \frac{9}{8}$ or $1\frac{1}{8}$
f) self check

NA12 %'s

- a) i) $0.15 \times 12 = \text{£}1.80$
ii) $\text{£}1.80 \times 5 = \text{£}9$
b) $0.15 \times 13 = 1.95$
 $13 - 1.95 = \text{£}11.05$
c) $200 \times (1.1)^2 = \text{£}242$

NA13 Reverse %'s

- a) $\text{£}6166$ to nearest £
b) $\text{£}341.18$ to nearest penny

NA14 Direct Proportion

- a) 10
b) i) 4 ii) 20
c) $y = kx$, $80 = k5$, $k = 16$, $y = 16x$
 $x = 2$, $y = 16 \times 2 = 32$
d) 10
e) $y = kx$, $7 = k24$, $k = \frac{7}{24}$, $y = \frac{7}{24}x$
 $y = 8$, $8 = \frac{7}{24}x$, $x = \frac{8 \times 24}{7} = 27\frac{3}{7}$
(or $x = 27.428\dots$)

NA16 Brackets

- a) $2x+6$ b) $10x-6$
c) $6-12x$
d) $2x^2-10x+2x-10$
 $2x^2-8x-10$
e) $x^2-5x-3x+15$
 $x^2-8x+15$

NA17 Factorise i) & ii)

- a) $8(3x-1)$ b) $2(11x+4)$
c) $(x+11)(x-3)$ d) $(x-2)(x-3)$

NA19 Set-up Eqns

- a) $x+(x+10)+(x+20)+(x+30) = 360^\circ$
(which would lead to $x=75$)
b) $2(x+3) = 3x+5$
(which would lead to $x=1$)

NA20 Solve Eqns

- a) $3x-5=8$, $3x = -8+5=-3$, $x = -1$
b) $x-5=4$, $x = 9$
c) $x = \frac{11}{7}$ or $1\frac{4}{7}$

NA21 i) & ii) Change Subject

- a) $y = 3x + 5$ b) $x = \frac{y+5}{6}$
c) $x = \sqrt[3]{y-2}$ d) $y^4 = x^3 - 3$
 $y^4 + 3 = x^3$

$$x = \sqrt[3]{y^4 + 3}$$

NA21 iii) Change Subject

- a) $2xy - 7x = 5 - y$
 $x(2y - 7) = 5 - y$
 $x = \frac{5 - y}{2y - 7}$

- b) $6x - 2x = 4 + y$

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

- c) $xy + x = y$
 $x(y + 1) = y$

$$x = \frac{y}{y + 1}$$

NA21iii) Extra – Complex Expressions

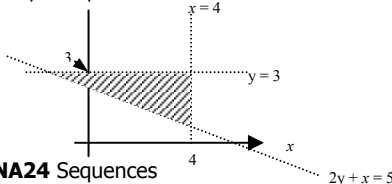
- d) $y^2 = x - 1$, so $x = y^2 + 1$
e) $y + 1 = \sqrt{x}$, so $x = (y + 1)^2$

NA22 Inequalities

- a) $3x > 27 - 9$, $x > 6$
b) $x \leq 30$
c) $5x - 3 \geq -28$
 $5x \geq -28 + 3$
 $x \geq -5$

NA23 Regions

- a) $2y + x = 5$
 $x = 0$, $y = 2.5$, crosses y-axis at 2.5
 $y = 0$, $x = 5$, crosses x-axis at 5



NA24 Sequences

- a) 49, 64 b) 64, 128
c) 100,000 1,000,000
d) 28, 36 e) 37, 50 . . .
f) 21, 34 . . .
g)

NA25 Trial & Improvement

- a) Use $x^3 - x$

Try $5 \rightarrow 120$
 $6 \rightarrow 210$
 $5.9 \rightarrow 199.479$
 $5.95 \rightarrow 204.69\dots$
 $x = 5.9$ to 1 d.p.

- b) try 0.15 , $\frac{1}{0.15} = 6.666\dots$ too small.

so answer lies between 0.15 & 0.2; 0.2 to 1 d.p.

NA26 Solving Quadratics by Factorisation

- a) $x = -3$, or 4
b) $x+3=0$ when $x = -3$
 $x-4=0$ when $x = 4$

NA28 Simultaneous Equations

- a) add eq's, $3y = 12$ $y = 4$ and $x = 3$
b) $10x + 15y = -30$
(-) $10x - 8y = 62$
 $23y = -92$
 $y = -4$ and $x = 3$

NA30 nth term

- a) $k = 7$, $n = 7n - 4$
b) $k = -2$, $n = -2n + 102$

NA31 $y = mx + c$

- a) $(6,0)$ $(0,2)$ $m = \frac{\Delta y}{\Delta x} = \frac{-2}{6} = -\frac{1}{3}$
 $c = 2$, $y = -\frac{1}{3}x + 2$ or $-\frac{x}{3} + 2$

NA32 Parallel & Perpendicular

- a) i) & iii) b) $y = 4x \pm ?$ where ? is any number for example $y = 4x + 3$.
c) $C = 4$, so $y = 3x + 4$

NA33 Graphs

- a) C
b) starts to speed up
c) $C \rightarrow D$
d) deceleration or slowing down
e) i)
f) QR
g) M \rightarrow N constant speed (or velocity)
N \rightarrow O stopped or stationary

NA34 Plot quads and cubics

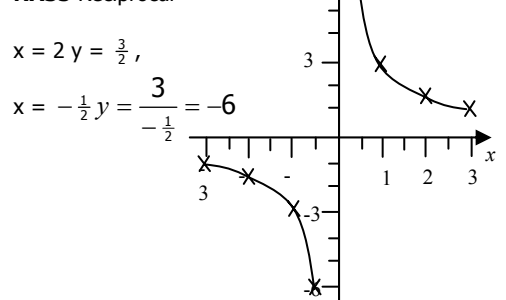
- a)

x	-2	-1	0	1	2
$3x^2$	12	3	0	3	12
$-x$	2	1	0	-1	-2
-1	-1	-1	-1	-1	-1
$y = 3x^2 - x - 1$	13	3	-1	1	9

x	-2	-1	0	1
x^2	4	1	0	1
$-3x$	6	3	0	-3
-1	-1	-1	-1	-1
$y = x^2 - 3x - 1$	9	3	-1	-3

- b) $x = 3$ $y = 4(3)^3 + 2(3) - 2 = 112$
 $x = -3$ $y = 4(-3)^3 + 2(-3) - 2 = -116$
c) $x = 3$ $y = -4(3)^3 = -108$
 $x = -3$ $y = -4(-3)^3 = 108$

NA35 Reciprocal



Answers – Your Turn!! – Shape & Space

SS1 Pythagoras

a) & b) self check

c) i) $? = \sqrt{9^2 + 12^2} = 15$

ii) $? = \sqrt{12^2 - 9^2} = \sqrt{63}$ or 7.94 to 3s.f.

SS2 Trigonometry

a) & b) self check

c) $\cos A = \frac{AB}{AC}, \tan A = \frac{BC}{AB}$

d) $\sin \theta = \frac{4}{8}, \theta = 30^\circ$

e) $\cos 38 = \frac{AB}{20}, AB = 20 \cos 38$

$= 15.760.. = 15.8\text{cm}$ 3sf

SS6 Bearings

a) $\angle BCA = \angle BAC = 22.5^\circ$

b) i) 225°

ii) 270°

iii) 247.5°

SS7 Surface Area

a) $(2 \times 10) \times 4 + (2 \times 2) \times 2 = 88\text{units}^2$

b) $2(2 \times 3 + 2 \times 4 + 3 \times 4) = 52\text{cm}^2$

c) $2[\pi 4^2] + 2\pi 4 \times 5 = 72\pi \text{cm}^2$

SS8 Volume

a) $1 \times 2 \times 3 = 6\text{cm}^3$

b) $\pi \times 3^2 \times 10 = 90\pi \text{cm}^3$ or 283cm^3 3sf

c) Area $\Delta = 0.5 \times 6 \times 2 = 6\text{cm}^2$

$V = 6 \times 10 = 60\text{cm}^3$

SS9 Circles

d) B & D; or $\angle ABC$ & $\angle ADC$

e) no, G is not on circumference

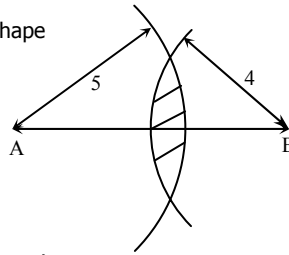
SS12 Constructions

ab) –

SS13 Loci

a) Racetrack shape

b)



SS14 Transformations

a) Reflection in the line $x = -\frac{1}{2}$

b) i) Translation $\begin{pmatrix} 4 \\ 1 \end{pmatrix}$

ii) Translation $\begin{pmatrix} -4 \\ -1 \end{pmatrix}$

c) i) Rotation 90° anticlockwise (or $+90^\circ$) about $(-1, 0)$

ii) Rotation 90° clockwise (or -90°) about $(-1, 0)$

d) –

SS15 Enlargement

a) 5 right (0 up)

b) $\times 2$ centre $(1, 1)$

c) $\times \frac{1}{2}$ centre $(1, 1)$

SS16 Similar Triangles

a) IH

b) Establish similar Δ 's
In Δ 's ABC & ADE

SS16 cont...

$\angle BAC$ common

$\angle ABC = \angle ADE$ F-angles

$\angle ACB = \angle AED$ F-angles

$\therefore \Delta ABC$ similar to ΔADE

$AC : AE = 5 : 9$

$AD = 4 \times \frac{9}{5} = 7.2\text{cm}$

$DE = 6 \times \frac{9}{5} = 10.8\text{cm}$

SS18 Dimensions

a) Area

b) Area

c) Area

d) Length

Extra

e) Area

f) Length

SS19 Speed Density

a) $D = \frac{M}{V} = \frac{0.414}{90} = 0.0046\text{kg/cm}^3$

or 4.6×10^{-3}

b)

$D = \frac{M}{V}, 0.001 = \frac{0.05}{V}, V = \frac{0.05}{0.001} = 50\text{cm}^3$

SS20 Converting cm^3 and m^3

a) $30000 \div (100)^3 = 0.03\text{m}^3$

b) $12 \times (10)^3 = 12,000\text{mm}^3$

Answers – Your Turn!! – Handling Data

HD1 Correlation

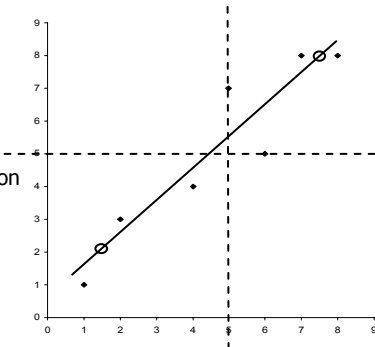
a) 3

b) i) $(1, 1)$ $(2, 3)$

ii) $(7, 8)$ $(9, 8)$

c) 3

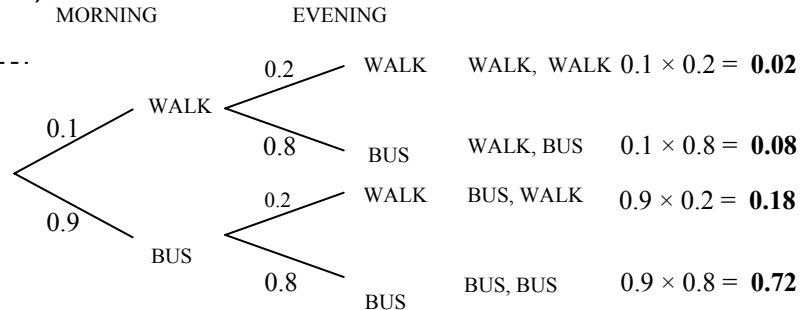
d) positive correlation (moderate)



HD2 Probability

a) 75 b) 0.42

c)



c) $0.02 + 0.08 + 0.18 + 0.72 = 1$

HD3 Bias & Primary * Secondary Data

b) introduce bias

HD4 Statistical Calculations

a) **Mean** = $\frac{\text{Sum}}{\text{How Many}}$ **Median** - Middle value

Mode - Most Frequent **Range** = Biggest - Smallest

b) 1, 1, 1, 1, 1, 2, 2, 2, 2, 5. Mean = $\frac{1+1+1+1+1+2+2+2+2+5}{10} = \frac{18}{10} = 1.8$ Median = 1.5 (Mean of 1 & 2) Mode = 1 Range = $5 - 1 = 4$

c)

Weight, w	Frequency	Mid-Point \times Frequency
$0 \leq w < 10$	8	$5 \times 8 = 40$
$10 \leq w < 20$	2	$15 \times 2 = 30$
$20 \leq w < 30$	10	$25 \times 10 = 250$
$30 \leq w < 40$	80	$35 \times 80 = 2800$
Total	100	3120

Mean = $\frac{3120}{100} = 31.2$

Median is the (50 or) 50.5th number. This falls in the $30 \leq w < 40$ group, Modal Group is $30 \leq w < 40$

d) Do not have the original numbers, just the range they fall in.

e) 1, 1, 3, 4, 6, 8, 10, 11, 12, 15, 15.

11 numbers, $n = 11$. Lower quartile, $Q_1 = \frac{1}{4}(n+1)^{\text{th}} = 3^{\text{rd}} = 3$. Median, $Q_2 = \frac{1}{2}(n+1)^{\text{th}} = 6^{\text{th}} = 8$. Upper quartile, $Q_3 = \frac{3}{4}(n+1)^{\text{th}} = 9^{\text{th}} = 12$

Inter-Quartile Range, $Q_3 - Q_1 = 12 - 3 = 9$.

(Because we have exact numbers we use the $(n+1)$ formula. Only for grouped data and for cumulative frequency graphs where we are looking for an estimate do we use the easier formula where we drop the $(n+1)$ for just n .)

Answers – Your Turn!! – Handling Data cnt...

HD5 Moving Averages

a) $\frac{90+26+146+130}{4} = \frac{392}{4} = 98$
 $\frac{26+146+130+110}{4} = \frac{412}{4} = 103$
 $\frac{146+130+110+15}{4} = \frac{401}{4} = 100.25$
 $\frac{130+110+15+165}{4} = \frac{420}{4} = 105$

HD6 Cumulative Frequency Curves

a) Extending the table:

Age (a years)	F	C. F.
$0 \leq a < 20$	5	5
$20 \leq a < 40$	5	10
$40 \leq a < 60$	35	45
$60 \leq a < 80$	25	70
$80 \leq a < 100$	10	80

Or more fully with a new table:

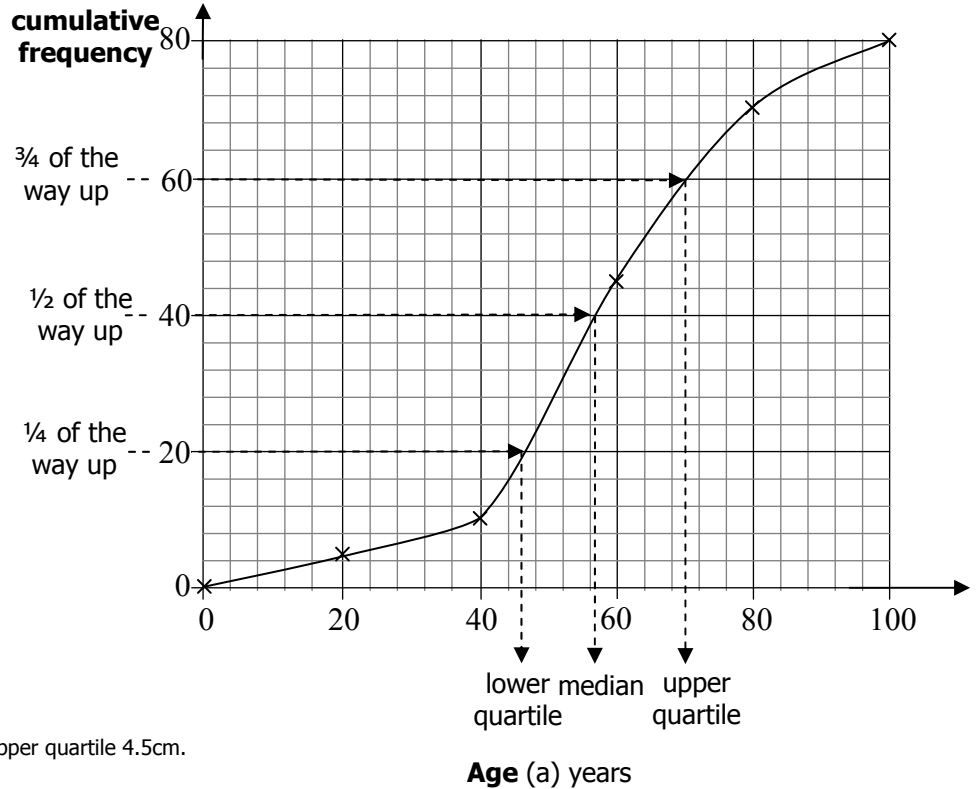
Age, a	C. F.
< 0	0
< 20	5
< 40	10
< 60	45
< 80	70
< 100	80

optional row

- b) - see graph
 c) lower quartile 46 ± 2
 median 57 ± 2
 upper quartile 70 ± 2

HD7 Box Plots

- a) lowest value 0.5cm, lower quartile 2.5cm, upper quartile 4.5cm.
 b) A: Inter-quartile range = $5.5 - 3.5 = 2$
 B: Inter-quartile range = $4.5 - 2.5 = 2$



Answers – Rapid Acid!! – Number & Algebra

NA1 HCF LCM

1. 60
 2. 4

NA2 Primes

1. (A number with) two factors
 2. 2 & 19 are prime
 3. $2 \times 2 \times 5 \times 5$

NA3 Negatives

1. 32
 2. 15
 3. -5
 4. 2
 5. -2
 6. -9

NA4 Substitution

1. $y = 7 - 3(-2) = 7 + 6 = 13$
 2. $y = 1 - 3(-5)^2 = 1 - 3(25) = 1 - 75 = -74$

NA5 Index Laws

1. 3^{15}
 2. $3^{8-7} = 3^1 = 3$
 3. $3^{8 \times 7} = 3^{56}$
 4. $x^{3+9} = x^{12}$
 5. $y^{5-3} = y^2$
 6. $z^{4 \times 7} = z^{28}$

NA6 Significant Figures

1. 70
 2. 70.3
 3. 0.055
 4. 0.0545

NA7 SIF

1. 13400
 2. 1.34×10^{-2}
 3. 1.522756×10^{12}

NA8 Ratio

1. $12 : 100 = 3 : 25$
 2. $21 : 28 = 3 : 4$
 3. $22 \div 11 = 2$, so £6, £16
 4. $100 \div 13 = 7.692307692$

Jim $\times 5 = 38.4615...$
 $= \text{£}38.46$ to nearest penny

NA9 Fractions

1. a) $\frac{8}{15}$
 b) $\frac{2}{3} \times \frac{5}{4} = \frac{1}{3} \times \frac{5}{2} = \frac{5}{6}$
 c) $1\frac{7}{15}$ or $(\frac{22}{15})$

NA12 %'s

1. $546 \times 1.175 = \text{£}641.55$
 2. £160
 3. $400 \times (1.05)^3 = \text{£}463.05$

NA13 Reverse %'s

1. £25.74 to nearest penny
 2. £414.29 to nearest penny

NA14 Direct Proportion

1. 48
 2. $\frac{7}{12}$

NA16 Brackets

1. $2-6x$
 2. $2x^2 - 11x + 2x - 11$
 $2x^2 - 9x - 11$

NA17 Factorise

1. $4(25x-2)$ note $2(50x-4)$ is not fully factorised
 2. $6(3-2x)$
 3. $(x+1)(x+100)$
 4. $(x+4)(x-5)$

NA19 Set-up Eqns

1. $3y = y + 5$
 2. $2(z+5) = 3z - 4$

NA20 Solve Eqns

1. $3x = -6 + 7 = 1$, $x = \frac{1}{3}$ or 0.3
 2. $x - 2 = 4$, $x = 6$
 3. $x = \frac{2}{11}$

NA21i) & ii) Change Subject

1. a) $x = \frac{y-2}{5}$
 b) $x = \frac{y+2}{y}$ or $1 + \frac{2}{y}$
 c) $x^3 = 2 - y^2$, $x = \sqrt[3]{2 - y^2}$

NA21iii) Change Subject

1. a) $x - xy = -1$
 $x(1-y) = -1$
 $x = \frac{-1}{1-y}$ or $\frac{1}{y-1}$
 b) $xy - x = 1 + 2y$
 $x(y-1) = 1 + 2y$

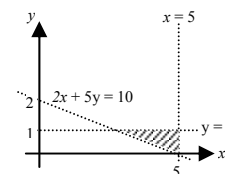
$$x = \frac{1+2y}{y-1}$$

NA22 Inequalities

1. a) $2x > 6$, $x > 3$
 b) $x + 3 \geq -27$, $x \geq -30$
 2. -2, -1, 0, 1

NA23 Regions

1. $2x + 5y = 10$
 $x = 0$, $y = 2$, crosses y-axis at 2
 $y = 0$, $x = 5$, crosses x-axis at 5



Answers – Rapid Acid!! – Number & Algebra cnt...

NA24 Sequences

- $3 \times 81 = 243$
- $7 + 13 + 24 = 44$

NA25 Trial & Improvement

- Use $x^3 - 2x - 150$
Try 5 → -35 too small
6 → 54 too big
5.5 → 5.375 too big
5.4 → -3.336 too small

examiners look for half way value i.e. 5.45 → 0.978625 too big

$$x = 5.4 \text{ to } 1 \text{ d.p.}$$

NA26 Solving Quadratics by Factorisation

- $x = -1$, or 2
- $(x - 20)(x + 2) = 0$
 $x = 20$ or -2

NA28 Simultaneous Equations

- $x = -2$ $y = 9$
- $\times 3$ $6x + 9y = 60$
 $(-)$ $6x + 8y = 44$
 $y = 16$, $x = -14$

NA30 n^{th} term

- $-20n + 120$

NA31 $y = mx + c$

- gradient, $m = 3$
 y -intercept, $c = 4$
- $c = 5$ $m = \frac{\Delta y}{\Delta x} = \frac{4}{-2} = -2$
 $y = -2x + 5$

NA32 Parallel & Perpendicular

- i) & iii)

NA33 Graphs

- A → B constant (steady) speed
 B → C deceleration (Speed decreases)
- 8500m
- a) O → P stopped (stationary)
 P → Q constant speed
 b) N → O

NA34 Plot quads and cubics

x	-2	-1	0	1	2
$3x^3$	-24	-3	0	3	24
$-x^2$	-4	-1	0	-1	-4
+ 1	1	1	1	1	1
$y = 3x^3 - x^2 + 1$	-27	-3	1	3	21

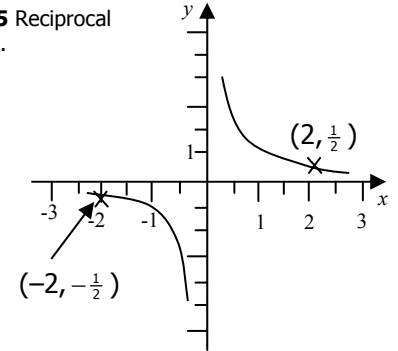
Plot x/y axes (x from -2 to 2) plot points

$(-2, -27)$, $(-1, -3)$ $(0, 1)$ etc.

Join points with a smooth curve.

NA35 Reciprocal

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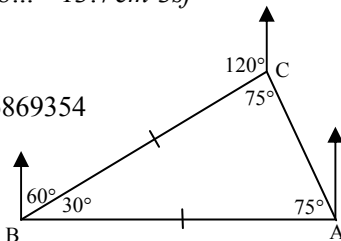
Answers – Rapid Acid!! – Shape & Space

SS1 Pythagoras


- $BC = \sqrt{10^2 - 8^2} = 6$
 $CD = \sqrt{6^2 + 6^2} = \sqrt{72}$ or 8.49 3sf

SS2 Trig

- $\tan 70 = \frac{AD}{5}$
 $AD = 5 \tan 70 = 13.73738... = 13.7 \text{ cm } 3\text{sf}$
- In $\triangle ACD$, $\sin C = \frac{AD}{20}$
 $\sin C = \frac{5 \tan 70}{20} = 0.686869354$
 $\therefore C = 43.4^\circ$ to 3sf



SS6 Bearings

- a) 
 b) Isosceles $\triangle \therefore \angle ACB = \angle BAC = 75$
 i) 345° ii) $360 - 120 - 75 = 165^\circ$

SS7 Surface Area

- i) $2(1 \times 2 + 2 \times 3 + 1 \times 3) = 22 \text{ unit}^2$
 ii) $54\pi \text{ unit}^2$ exactly which is 170 unit^2 to 3sf

SS8 Volume

- $2 \times 3 \times 4 = 24 \text{ cm}^3$
- $\pi \times r^2 \times h = \pi \times 5^2 \times 6 = 150\pi \text{ cm}^3$ or 471 cm^3 3sf
- $0.4 \times 0.2 = 0.08 \text{ cm}^3$

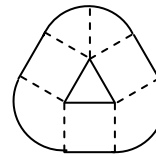
SS9 Circles

- $ADC = 180 - 110 = 70$ (iv)
- theorem ii)
- $\angle AOB$ - theorem i)
- i) $\angle ADB$ - theorem iii)
 ii) acute

SS12 Constructions

- Construct 60° - see Equilateral Triangle SS12
 Bisect this angle - see Angle Bisector SS12

SS13 Loci



dotted lines are 5cm long

SS14 Transformations

- a) Reflection $x = -1/2$
 b) Translation $\begin{pmatrix} -3 \\ -5 \end{pmatrix}$
 c) Rotation about $(-1, 0)$ 90° clockwise or (-90°)

SS15 Enlargement

- a) scale factor 3 (or $\times 3$) centre $(4, 5)$
 b) scale factor $\frac{1}{3}$ (or $\times \frac{1}{3}$) centre $(4, 5)$

SS16 Similar Triangles

- [XY is opposite $\angle x^\circ$ this corresponds to side BC]
 XZ corresponds to AC
 $\frac{15}{6}$ scale factor of enlargement
 $\therefore XY = 5.6 \times \frac{15}{6} = 14 \text{ cm}$

SS18 Dimensions

- Volume
- Length
- Volume

SS19 Speed Density

- $D = \frac{M}{V} = \frac{16}{400} = 0.04 \text{ kg/cm}^3$
- $T = \frac{D}{S} = \frac{110}{20} = 5.5 \text{ s}$

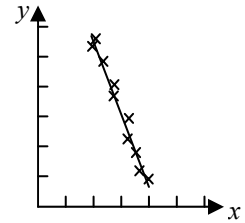
SS20 Converting cm^3 and m^3

- $0.0025 \times (100)^3 = 2,500 \text{ cm}^3$
- $120 \div (10)^3 = 0.12 \text{ cm}^3$

Answers – Rapid Acid!! – Handling Data

HD1 Correlation

- i) no correlation, a line is NOT appropriate
- ii) (strong) negative correlation

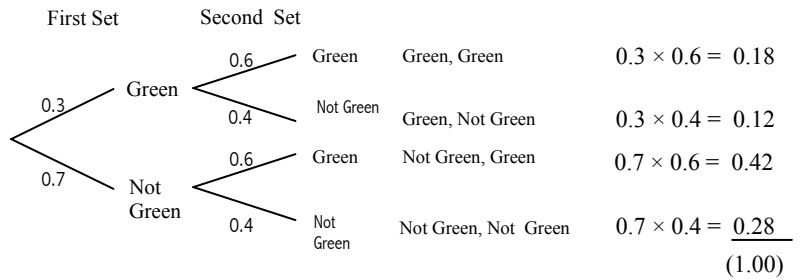


HD2 Probability

- By Relative Frequency,

$$P(\text{first set green}) = \frac{\text{The Number of Successes}}{\text{The Number of Trials}} = \frac{3}{10} \text{ or } 0.3 \text{ etc}$$

$$P(\text{first set not green}) = 1 - 0.3 = 0.7$$



HD3 Data & Sampling

- increase size of the sample
- a) data already collected e.g. national census
- b) leading questions
(or by inappropriate selection of people doing the questionnaire including asking too few people)

HD4 Statistical Calculations

- a) Mean = $\frac{30 \times 29 + 50 \times 11 + 70 \times 40 + 90 \times 60}{29 + 11 + 40 + 60} = \frac{9620}{140} = 68\frac{5}{7}$ or 68.7% 3sf

- b) $80 \leq \% < 100$

- c) The median is the 70.5th number, this falls in the $60 \leq \% < 80$ group.

(For grouped data taking the 70th number is also fine, giving the same answer.)

- 1, 1, 4, 5, 6, 8, 10, 11, 12, 30. (10 numbers)

lower quartile is the $\frac{1}{4}(n+1)^{\text{th}} = 2.75 \rightarrow 3^{\text{rd}} = 4$.

upper quartile is the $\frac{3}{4}(n+1)^{\text{th}} = 8.25 \rightarrow 8^{\text{th}} = 11$.

IQR = $11 - 4 = 7$.

(Because we have exact numbers we use the (n+1) but for grouped data and for cumulative frequency curves we use the easier formula where we drop the (n+1) for just n.)

HD5 Moving Averages

- a) $\dots, \frac{32}{7}, \frac{33}{7}, \frac{36}{7}, \frac{38}{7}, \frac{43}{7}, \frac{47}{7}$.

- b) Thursday (of the first week).

HD6 Cumulative Frequency Diagrams

- optional cf table

Score (%)	cf
< 20	0
< 40	4
< 60	12
< 80	18
< 100	20

lower q = 44 ± 2

median = 55 ± 2

upper q = 69 ± 2

HD7 Box Plots

- a) i) 1cm
ii) 13cm
- b) i) 5 cm, 9cm
ii) $9 - 5 = 4\text{cm}$
- c) 6cm

