

A-level Maths Flashcards

Pure, Mechanics and Statistics

FREE TO PRINT & SHARE

Twenty-four large revision cards covering core A-level Pure and Applied Mathematics, each with a checked answer and method.

WHAT'S INSIDE

- 24 question-and-answer cards
- Four large cards per A4 sheet
- Print double-sided and flip on the long edge
- Worked method on every answer card

A-level Maths Flashcards

QUESTION FRONTS - cut on the guide lines

DIFFERENTIATION

CARD 1

Differentiate $5x^4 - 3x^2 + 7$.

Work it out before turning over

STATIONARY POINTS

CARD 2

Find the stationary x-values of $y = x^3 - 12x$.

Work it out before turning over

INTEGRATION

CARD 3

Find the indefinite integral of $6x^2 - 4x$.

Work it out before turning over

DEFINITE INTEGRATION

CARD 4

Evaluate integral of $4x$ from 1 to 3.

Work it out before turning over

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ANSWER BACKS - cut on the guide lines

STATIONARY POINTS

CARD 2

$$x = -2 \text{ or } 2$$

$$dy/dx = 3x^2 - 12 = 0.$$

DIFFERENTIATION

CARD 1

$$20x^3 - 6x$$

Multiply by the power and reduce it by one.

DEFINITE INTEGRATION

CARD 4

$$16$$

Antiderivative $2x^2$; $18 - 2$.

INTEGRATION

CARD 3

$$2x^3 - 2x^2 + C$$

Raise each power and divide by the new power.

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QUESTION FRONTS - cut on the guide lines

CHAIN RULE

CARD 5

Differentiate $(3x+1)^5$.

Work it out before turning over

PRODUCT RULE

CARD 6

Differentiate $x^2 e^x$.

Work it out before turning over

TRIGONOMETRY

CARD 7

**Solve $\sin x = 1/2$ for
 $0 \leq x \leq 360$ degrees.**

Work it out before turning over

LOGARITHMS

CARD 8

Solve $\log_2(x) = 7$.

Work it out before turning over

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ANSWER BACKS - cut on the guide lines

PRODUCT RULE

CARD 6

$$e^x(x^2+2x)$$

Use uv prime + vu prime.

CHAIN RULE

CARD 5

$$15(3x+1)^4$$

Outer derivative times inner derivative 3.

LOGARITHMS

CARD 8

$$x=128$$

Convert to exponential form: $x=2^7$.

TRIGONOMETRY

CARD 7

$$x=30 \text{ or } 150 \text{ degrees}$$

Sine is positive in quadrants I and II.

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QUESTION FRONTS - cut on the guide lines

EXPONENTIALS

CARD 9

Solve $3^{(x+1)}=81$.

Work it out before turning over

BINOMIAL EXPANSION

CARD 10

Coefficient of x^2 in $(1+2x)^5$.

Work it out before turning over

ARITHMETIC SERIES

CARD 11

**Sum first 20 terms of 4, 7, 10,
...**

Work it out before turning over

GEOMETRIC SERIES

CARD 12

Sum to infinity: $12+6+3+...$

Work it out before turning over

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ANSWER BACKS - cut on the guide lines

BINOMIAL EXPANSION

CARD 10

40

Choose 2: $C(5,2)(2x)^2$.

EXPONENTIALS

CARD 9

$x=3$

$81=3^4$, so $x+1=4$.

GEOMETRIC SERIES

CARD 12

24

$a/(1-r)=12/(1-1/2)$.

ARITHMETIC SERIES

CARD 11

650

$S_{20}=10[8+57]$.

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QUESTION FRONTS - cut on the guide lines

VECTORS

CARD 13

$a=(3,-1)$, $b=(2,4)$. Find $2a-b$.

Work it out before turning over

RADIANS

CARD 14

Convert 150 degrees to radians.

Work it out before turning over

COMPLEX NUMBERS

CARD 15

Simplify $(3+2i)(1-i)$.

Work it out before turning over

SUVAT

CARD 16

$u=6$ m/s, $a=3$ m/s², $t=5$ s. Find v .

Work it out before turning over

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ANSWER BACKS - cut on the guide lines

RADIANS

CARD 14

$$5\pi/6$$

Multiply by $\pi/180$.

VECTORS

CARD 13

$$(4, -6)$$

$2a = (6, -2)$, then subtract b .

SUVAT

CARD 16

$$21 \text{ m/s}$$

$v = u + at$.

COMPLEX NUMBERS

CARD 15

$$5 - i$$

Expand and use $i^2 = -1$.

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QUESTION FRONTS - cut on the guide lines

SUVAT DISTANCE

CARD 17

$u=4$, $a=2$, $t=6$. Find displacement.

Work it out before turning over

NEWTON SECOND LAW

CARD 18

Mass 8 kg accelerates at 2.5 m/s^2 . Force?

Work it out before turning over

MOMENTUM

CARD 19

Mass 5 kg moves at 7 m/s . Momentum?

Work it out before turning over

PROJECTILES

CARD 20

Vertical velocity starts 19.6 m/s . Time to highest point, $g=9.8$.

Work it out before turning over

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ANSWER BACKS - cut on the guide lines

NEWTON SECOND LAW

CARD 18

20 N

$$F=ma.$$

SUVAT DISTANCE

CARD 17

60 m

$$s=ut+\frac{1}{2}at^2=24+36.$$

PROJECTILES

CARD 20

2 s

At the top $v=0$; use $v=u-gt$.

MOMENTUM

CARD 19

35 kg m/s

$$p=mv.$$

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QUESTION FRONTS - cut on the guide lines

MEAN

CARD 21

Find mean of 11, 14, 14, 16, 20.

Work it out before turning over

VARIANCE

CARD 22

For data 2,4,6, find population variance.

Work it out before turning over

BINOMIAL DISTRIBUTION

CARD 23

$X \sim B(20, 0.3)$. Find $E(X)$.

Work it out before turning over

NORMAL DISTRIBUTION

CARD 24

$X \sim N(50, 9)$. Give mean and standard deviation.

Work it out before turning over

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ANSWER BACKS - cut on the guide lines

VARIANCE

CARD 22

$8/3$

Mean 4; squared deviations total 8; divide by 3.

MEAN

CARD 21

15

Total 75 divided by 5.

NORMAL DISTRIBUTION

CARD 24

50 and 3

Variance is 9, so standard deviation is $\sqrt{9}$.

BINOMIAL DISTRIBUTION

CARD 23

6

$E(X)=np$.