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Parent Help Guide

Maths Assessment

Key Stage 1-4

How to use this guide

Well done for downloading our Parent Help Guide. You're on the right track to get more visibility to child's current maths levels. This guide includes not only the correct answers to each question of the online maths assessments, but each year's topic list and some helpful tips from our teachers.

1. Find out your child's maths level with the EdPlace online assessment and have fun learning

Have your child complete the EdPlace online assessment. Our maths teachers have created 4 online maths assessments for the end of each key stages.

Key stage 1

https://www.edplace.com/mathsassessment_year2

Key stage 2

https://www.edplace.com/mathsassessment_year6

Key stage 3

https://www.edplace.com/mathsassessment_year9

Key stage 4

https://www.edplace.com/mathsassessment_year11

Your child can choose the right key stage and get started. The assessments include 30 to 39 questions (depending on the key stage), and cover the topics that your child has learned. The assessment can take up to 1 hour.

On the last screen of the assessment you'll see your child's score. Use this score to understand your child's current level. Our maths teachers have created 3 levels to keep it simple, depending on the scores:

1. Bronze Mathematician (performing below target)

2. Silver Mathematician (performing at their target level)

3. Gold Mathematician (performing above target)

Scroll down to 'Assign & Track Progress' https://www.edplace.com/mathsassessment section on the online page. Based on your child's score, you'll find the list of recommended tutorial worksheets. Assign the worksheets, track their progress in your account and see their results during the term. Brilliant!

Answer Sheet

Maths Assessment
Key Stage 1

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Answers

Eddie Says

1 Correct Answer
| C; 5, 17, 20, 24, 33 |

Explanation
Counting up, we would say 5 first and 33 last. 17, 20, and 24 come in between.

2 Correct Answer
| 24 |

Explanation
Either add 5 to the 19 or take 5 away from the 29.

3 Correct Answer

A = 73
B = 75
C = 81
D = 76
E = 74
F = 84
G = 83
H = 82

Explanation
Count backwards from 77 and forwards from 80 and match the letters.

4 Correct Answer
| C; 92 |

Explanation
9 blocks of 10 and 2 extra.

5 Correct Answer
| 6 |

Explanation
Start at 14 and count backwards 8 to 6.

6 Correct Answer
| 40 p |

Explanation
We add 25 and 15.
25 + 10 = 35.
35 + 5 = 40.

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Answers

Eddie Says

7 **Correct Answer**

A = 87
B = 42

Explanation
Work backwards and add 15.
B is 27 + 15 = 42.
A is 42 + 15 + 15 + 15 = 87.

8 **Correct Answer**

18

Explanation
46 - 28 = 18

9 **Correct Answer**

50
12
30
25
16

Explanation
You should know your 2, 5 and 10 times tables by heart.
10 × 5 = 50.
6 × 2 = 12.
3 × 10 = 30.
5 × 5 = 25.
8 × 2 = 16.

10 **Correct Answer**

8

Explanation
40 ÷ 5 = 8.
8 × 5 = 40.

11 **Correct Answer**

=

Explanation
49 - 2 = 47
94 ÷ 2 = 47

12 **Correct Answer**

D

Explanation
67 is NOT less than 20.
67 is NOT even.

13 **Correct Answer**

3

Explanation
12 ÷ 4 = 3

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Answers

Eddie Says

14

Correct Answer
14

Explanation
56 ÷ 4 = 14.
Or halve 56 to get 28, then halve 28 to get 14.

15

Correct Answer
B; ¼, ¾, 1, 1¼, 1½

Explanation
Remember that ¼ is smaller than ½ which is smaller than ¾.

16

Correct Answer
427

Explanation
400 + 20 + 7 = 427

17

Correct Answer
11:15

Explanation
The shorter hour hand is just past 11.
The longer minute hand is pointing to 3, which is 15 minutes past the hour.

18

Correct Answer
2½

Explanation
2 hours is 120 minutes.
½ hour is another 30 minutes.

19

Correct Answer
£2.68

Explanation
We write £2.68 using pounds as this is 268p in total.

20

Correct Answer
3 pencils and 1 pen;
3 pens and 1 pencil;
5 pencils and 2 pens.

Explanation
He has £1.79 in his pocket (or 179p).
3 pencils and 1 pen cost 45p + 50p = 95p.
3 pens and 1 pencil cost 150p + 15p = 165p.
2 pencils and 3 pens cost 30p + 150p = 180p.
5 pencils and 2 pens cost 75p + 100p = 175p.

Answers

Eddie Says

21 | Correct Answer | **5** | **Explanation**
Film A lasts 45 minutes.
Film B lasts 50 minutes.

22 | Correct Answer

a. D; length/height
b. A; mass
c. C; temperature
d. B; capacity

Explanation
cm and m are used to measure distances.
kg and g are used to measure how heavy something is.
°C is used to measure how hot or cold something is.
litres and ml are used to measure how much liquid there is in a container.

23 | Correct Answer | **pentagon** | **Explanation**
A pentagon has 5 sides.

24 | Correct Answer | **cylinder** | **Explanation**
It has a circular base, like a tube.

25 | Correct Answer

a. circle; 2D
b. sphere; 3D
c. cube; 3D
d. square; 2D
e. rectangle; 2D
f. cuboid; 3D

Explanation
2D objects are flat and drawn on paper.
3D objects are solid and can be picked up.

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Answers

Eddie Says

26

Correct Answer
B; a quarter turn anticlockwise

Explanation
Look at the black part, which is moving a quarter turn anticlockwise at each stage.

27

Correct Answer
C; cone

Explanation

28

Correct Answer
5

Explanation
There are 5 blocks above the word 'orange'.

29

Correct Answer
3

Explanation
12 cones are already shown, which stand for 120 people.
30 people are missing in the fruit and nut section.
That's 3 cones.

30

Correct Answer
26

Explanation
Half of 6 is 3, so 3 people chose pears.
6 + 3 + 5 + 5 + 7 = 26

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Now let's get learning! Here is a brief overview of what children study in maths in key stage 1 with all the topics and subtopics.

Access all these topics and 1000s of interactive tutorial worksheets via your parent account:
https://www.edplace.com/parent

Don't forget, there are 100s of online tutorial videos available in the student account:
https://www.edplace.com/student

Year 1
Number: Number and Place Value
• Count to 100,   • Read and Write Numerals to 100 (including multiples of 2, 5 and 10),   • Identify One More/One Less,   • Represent Numbers to 100,   • Order/Compare Numbers to 100,   • Read and Write Number Words to 20
Number: Addition and Subtraction
• Make Mathematical Statements Using +, – and =   • Use Number Bonds to 20   • Add and Subtract to 20   • Solve Add/Subtract Problems to 20
Number: Multiplication and Division
• Solve Multiplication/Division Problems
Number: Fractions
• Recognise Halves and Quarters
Measurement
• Solve Measurement Problems   • Measure and Record   • Money and its Value   • Sequence Events   • Use Time Language   • Tell the Time
Geometry: Properties of Shapes
• Recognise 2D and 3D Shapes
Geometry: Position and Direction
• Use Language of Position/Direction

Year 2

Number: Number and Place Value

- Count in Steps (2, 3, 5 and 10)
- Recognise Tens and Ones
- Represent Numbers to 100
- Order/Compare Numbers to 100
- Read and Write Numerals/Words to at Least 100
- Solve Place Value Problems to 100

Number: Addition and Subtraction

- Solve Add/Subtract Problems to 100
- Use Addition/Subtraction Facts to 100
- Use Mental Addition/Subtraction to 100
- Understand Order for Addition/Subtraction
- Understand Relationship Between Addition and Subtraction

Number: Multiplication and Division

- Use Multiplication/Division Facts (2, 5, 10)
- Calculate Using Multiplication/Division For Known Tables
- Understand Order for Multiplication/Division
- Solve Problems Using Multiplication/Division

Number: Fractions

- Recognise Fractions
- Write Fractions

Measurement

- Use Standard Units
- Compare Measurements
- Recognise Money Symbols
- Use Combinations of Coins
- Add/Subtract Money
- Compare/Sequence Time Intervals
- Tell/Write the Time
- Know Divisions of Time

Geometry: Properties of Shapes

- Identify 2D Shapes
- Identify 3D Shapes
- Identify 2D with 3D Shapes
- Compare 2D and 3D Shapes

Geometry: Position and Direction

- Sequence Objects
- Use Language of Position/Direction

Statistics

- Charts and Diagrams
- Counting and Sorting Data
- Totalling and Comparing Data

Answer Sheet

Maths Assessment
Key Stage 2

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Maths Answers and Explanations

Key Stage 2 • Year 3-6

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Answers

Eddie Says

1 Correct Answer

14022 or 14 022

Explanation
Fourteen thousand would be 14 000.
There are no hundreds.
Then we need 22 in the tens and units columns.

2 Correct Answer

B; 2

Explanation
The 2 is in the ten thousands column.

3 Correct Answer

3

Explanation
156 000 × 2 = 312 000. Remember that double 150 is 300.

4 Correct Answer

**B; 2,
C; 3,
E; 5,
G; 13
I; 29**

Explanation
Prime numbers only have two factors - the number itself and 1. 33, for example, is 3 × 11, so also has factors of 3 and 11 apart from 33 and 1.

5 Correct Answer

3 500 000 or 3500000

Explanation
3 456 011 is between 3 400 000 and 3 500 000 but closer to 3 500 000 because of the 5 in the ten thousands place.

6 Correct Answer

29

Explanation
Division takes priority over addition or subtraction.
30 ÷ 5 = 6.
So this reads 25 + 6 - 2 = 29.

Eddie Says

Answers

7 | Correct Answer | **60**

Explanation
30 + 20 = 50.
4 + 6 = 10.
Add together 50 + 10 = 60.

8 | Correct Answer | **54944**

Explanation
1616 × 4 = 6464.
1616 × 30 = 48480.
Add to get 54944.

9 | Correct Answer | **212 r4**

Explanation

```
            2 1 2  r4
      1 6 | 3 3 9 6
            3 2
            1 9
            1 6
              3 6
              3 2
                4
```

10 | Correct Answer | **7900**

Explanation
Difference is 5000.
Halve this to get 2500.
Add this to 5400.

11 | Correct Answer | **B; 375/1000**
C; 75/200
E; 15/40
F; 3/8

Explanation
By dividing top and bottom by 5, we see that 375/1000 reduces to 75/200, which reduces to 15/40, which reduces to 3/8.

12 | Correct Answer | **0.1725**

Explanation
69 ÷ 2 = 34.5
34.5 ÷ 2 = 17.25
So 69 ÷ 4 = 17.25
0.69 ÷ 4 = 0.1725

Answers

Eddie Says

13 | Correct Answer | **0.99**

Explanation
99 ÷ 100 = 0.99

14 | Correct Answer | **¼**

Explanation
The lowest common multiple of 5 and 20 is 20.
This gives 12/20 - 7/20 = 5/20 = 1/4.

15 | Correct Answer | **8**

Explanation
Turn 1/18 upside down.
Reduce the 5s.
Reduce the 18 and 9.
Multiply the tops and multiply the bottoms, giving 8/1.

16 | Correct Answer | **7.783**

Explanation
Add units to units and tenths to tenths.

17 | Correct Answer | **21**

Explanation
Ratio is 1:3, so missing length is 3 × 7 = 21.

18 | Correct Answer | **191.25**

Explanation
10% of 225 = 22.50
5% of 225 = 11.25
15% of 225 = 22.50 + 11.25 = 33.75
Work out 225 - 33.75.

19 | Correct Answer | **C; 2n + 7 = 21**

Explanation
Double n and add 7 to get 21.

Answers

Eddie Says

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20 | Correct Answer | **104**

Explanation
C = 40.
F = 40 × 9 ÷ 5 + 32 = 360 ÷ 5 + 32 = 72 + 32 = 104.

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21 | Correct Answer |
A; a = -3, b = 8
C; a = -5, b = 15
D; a = 3, b = -13

Explanation
7 × -3 + 2 × 8 = -21 + 16 = -5
7 × -8 + 2 × 25 = -56 + 50 = -6
7 × -5 + 2 × 15 = -35 + 30 = -5
7 × 3 + 2 × -13 = 21 + -26 = -5
7 × 8 + 2 × -25 = 56 - 50 = 6

---

22 | Correct Answer | **40**

Explanation
Base length = 10 cm.
Perpendicular height = 8 cm.
Area = 10 × 8 ÷ 2 = 80 ÷ 2 = 40 cm^2

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23 | Correct Answer | **B; 248 km**

Explanation
248 km = 248 ÷ 8 × 5 = 32 × 5 = 160 miles

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24 | Correct Answer | **400**

Explanation
Dimensions of cuboid will be 5 cm by 5 cm by 16 cm.
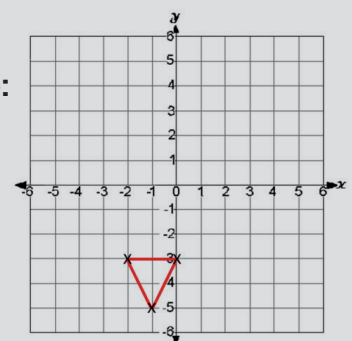Volume = 5 × 5 × 16 = 5 × 80 = 400 cm^3

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25 | Correct Answer | **A; isosceles triangle**

Explanation
Two sides are equal.
See the picture here:

Maths Answers and Explanations

Key Stage 2 • Year 3-6

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Answers

Eddie Says

26

Correct Answer

F

Explanation
G flips over the y-axis to land on F.

27

Correct Answer

62

Explanation
Angle b = 180 - 107 = 73°
Angles in a triangle add to 180°
d = 180 - 73 - 45 = 180 - 117 = 62°

28

Correct Answer

7

Explanation
7 is the one that is listed the most times.

29

Correct Answer

B; 25

Explanation
90° of the circle is ¼ of the circle.
¼ = 25%

30

Correct Answer

0.029

Explanation
At day 7, the height was 0.7 cm = 7 mm.
At day 10, the height was 3.6 cm = 36 mm.
36 - 7 = 29 mm = 0.029 m

National Curriculum Topic List
Key Stage 2 • Year 3-6

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https://www.edplace.com/student

Year 3

Number: Number and Place Value

- Count in Multiples (4, 8, 50 and 100)
- Find 10 or 100 More or Less than a Given Number
- Recognise Hundreds, Tens and Ones
- Order/Compare Numbers to 1000
- Represent Numbers to 1000
- Read and Write Numerals/Words to 1000
- Solve Number Problems to 1000

Number: Addition and Subtraction

- Use Mental Addition/Subtraction to 1000
- Use Written Addition/Subtraction to Three Digits
- Estimate and Check Answers
- Solve Add/Subtract Problems to 1000

Number: Multiplication and Division

- Use Multiplication/Division Facts (3, 4 and 8)
- Write Multiplication/Division Statements For Known Tables
- Solve Multiplication/Division Problems

Number: Fractions

- Count in Tenths
- Write Fractions
- Use Fractions
- Recognise Equivalent Fractions
- Add/Subtract Fractions
- Compare and Order Fractions
- Solve Fraction Problems

Measurement

- Use Length, Mass and Volume/Capacity
- Measure 2D Shapes
- Add/Subtract Money
- Tell the Time (analogue, 12-hour clocks, 24-hour clocks)
- Tell the Time (Roman Numerals from I to XII)
- Estimate, Read, Record and Compare Time
- Know Measurements of Time
- Compare Time Durations of Events

Geometry: Properties of Shapes

- Draw, Make and Recognise Shapes
- Recognise Angles
- Identify Right Angles
- Identify Line Types

Statistics

- UInterpret and Present Data
- Solve Statistic Problems

National Curriculum Topic List
Key Stage 2 • Year 3-6

Year 4

Number: Number and Place Value

- Count in Multiples (6, 7, 9, 25 and 1000)
- Find 1000 More or Less than a Given Number
- Count Backwards (including Negative Numbers)
- Recognise Thousands, Hundreds, Tens and Ones
- Order/Compare Numbers beyond 1000
- Use Different Representations of Numbers
- Round Numbers Up/Down (to 10, 100 or 1000)
- Solve Number Problems
- Read Roman Numerals (I to C/1 to 100)

Number: Addition and Subtraction

- Add/Subtract up to Four-Digit Numbers
- Estimate Calculations and Check Answers
- Use Correct Methods to Problem Solve

Number: Multiplication and Division

- Know Multiplication Tables up to 12 x 12
- Use Multiplication/Division Facts
- Recognise/Use Pairs in Mental Calculations
- Use Written Form for Multiplication
- Solve Multiplication Problems

Number: Fractions and Decimals

- Know Common Equivalent Fractions
- Count in Hundredths
- Solve Fraction Problems
- Add/Subtract Fractions
- Recognise Decimal Equivalents
- Write Decimal Equivalents
- Divide by 10 and 100
- Round One Decimal Place Up/Down
- Compare Decimals up to Two Places
- Solve Fraction and Decimal Problems

Measurement

- Convert Units of Measure
- Measure and Calculate Shapes
- Calculate Areas
- Use Different Measures
- Convert Analogue/Digital Time
- Solve Time Problems

Geometry: Properties of Shapes

- Compare Geometric Shapes
- Identify Acute/Obtuse Angles
- Identify Line Symmetry in 2D Shapes
- Use Symmetry

Geometry: Position and Direction

- Use Coordinate Grids
- Describe Movements of Position
- Plot Points and Draw Sides

Statistics

- Present Data Using Charts and Graphs
- Compare Data Using Charts and Graphs

Year 5

Number: Number and Place Value

- Know Numbers to 1 000 000
- Count in Steps to 1 000 000
- Interpret Negative Numbers
- Round Numbers to 1 000 000
- Solve Number Problems to 1 000 000
- Read Roman Numerals to M (1000)

Number: Addition and Subtraction

- Add/Subtract Four-Digit (or more) Numbers
- Add/Subtract Mentally
- Use Rounding for Answers/Accuracy
- Solve Multi-Step Add/Subtract Problems

Number: Multiplication and Division

- Identify Multiples and Factors
- Use Correct Vocabulary
- Multiply/Divide Mentally
- Multiply/Divide Formally
- Know Prime Numbers
- Multiply Numbers to Four Digits
- Multiply/Divide Using Decimals
- Recognise Square/Cube Numbers
- Solve Multiplication/Division Problems
- Solve Addition/Subtraction/Multiplication/ Division Problems
- Solve Multiplication/Division Problems with Fractions

Number: Fractions, Decimals and Percentages

- Order Fractions
- Identify Equivalent Fractions
- Convert Fractions
- Add/Subtract Fractions
- Multiply Fractions
- Know Decimal Numbers
- Relate Fractions to Decimals
- Round Up/Down Decimals
- Use up to Three Decimal Places
- Solve Problems with Decimal Places
- Recognise Percentages
- Solve Percentage/Decimal Problems

Measurement

- Convert Between Metric Measurements
- Approximate Metric and Imperial Measurements
- Measure Shapes in Metric
- Calculate/Estimate Areas
- Estimate Volume/Capacity
- Solve Time Problems
- Solve Four Operations Problem

Geometry: Properties of Shapes

- Identify 3D Shapes
- Know Angles and Degrees
- Draw and Measure Angles
- Identify Angles at a Point
- Understand Rectangles
- Understand Polygons

Geometry: Position and Direction

- Know, Describe and Present Shapes

Statistics

- Use Line Graphs
- Complete, Read and Interpret Tables

Year 6

Number: Number and Place Value

- Determine Digit Value to 10 000 000
- Round Numbers for Accuracy
- Use Negative Numbers
- Solve Number/Place Value Problems up to 10 000 000

Number: Addition, Subtraction, Multiplication and Division

- Multiply to Four Digits (Long Multiplication)
- Divide to Four Digits (Long Division)
- Divide to Four Digits (Short Division)
- Perform Mental Calculations
- Identify Common Factors, Multiples and Prime Numbers
- Carry Out Calculations Using Order of Operations
- Solve Multi-Step Add/Subtract Problems
- Solve Four Operations Problems
- Use Estimation to Check Answers

Number: Fractions, Decimals and Percentages

- Use Common Factors
- Compare and Order Fractions
- Add/Subtract Fractions
- Multiply Proper Fractions
- Divide Proper Fractions
- Calculate Fraction–Decimal Equivalents
- Use Three Decimal Places
- Multiply with Two Decimal Places
- Divide with Two Decimal Places
- Solve Rounding Problems
- Know Fraction–Decimal–Percentage Equivalents

Ratio and Proportion

- Solve Ratio Problems
- Solve Percentage Problems
- Solve Shape Problems
- Solve Fraction/Multiples Problems

Algebra

- Use Algebra Formulae
- Know Linear Number Sequences
- Express Problems Algebraically
- Use Equations
- Use Variables

Measurement

- Solve Conversion Problems
- Convert Between Standard Units
- Convert Miles/Kilometres
- Recognise Shapes
- Use Area/Volume Formulae
- Calculate Areas
- Use Cubes/Cuboids

Geometry: Properties of Shapes

- Draw 2D Shapes
- Know 3D Shapes
- Compare Shape Properties
- Know Circle Parts
- Recognise/Find Angles

Geometry: Position and Direction

- Use Coordinate Grids
- Draw/Translate Shapes

Statistics

- Use Charts and Graphs
- Calculate Average/Interpret Mean

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Answer Sheet

Maths Assessment
Key Stage 3

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Answers

Eddie Says

1 | Correct Answer | **932.733**

Explanation
Line up the decimal points, and add the digits in columns.

2 | Correct Answer | **624.288**

Explanation
Use long multiplication to work out 7432 × 84.
Then divide the answer by 1000.

3 | Correct Answer | **2273.31**

Explanation
Use long multiplication to work out 7839 × 87.
Then divide the answer by 1000 to get 681.993.
Then multiply both numbers by 10 to give 6819.93 ÷ 3.

4 | Correct Answer | **25**

Explanation
¼ of the people in the room have perfect eyesight.
¼ of 100 = 25.

5 | Correct Answer | **C**

Explanation
C shows the powers of 3, which increase very quickly.
The next number is 243, then 729.
The next number will be more than 1000.

6 | Correct Answer | **B; 3**
G; 9
I; 11

Explanation
2: ends in odd digit.
3: digit sum is 36, which is divisible by 3.
4: last two-digit number is not divisible by 4.
5: does not end in 0 or 5.
6: not divisible by 2.
8: last three-digit number is not divisible by 8.
9: digit sum is 36, which is divisible by 9.
10: does not end in 0.
11: compare alternate digit sums which are both 18.

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Answers

Eddie Says

7

Correct Answer | **42.26**

Explanation
42.259 is between 42.25 and 42.26, but it is nearer to 42.26.

8

Correct Answer

a; 40000
b; 37000
c; 37300

Explanation
1 sig. fig: 37255 is between 30000 and 40000 but nearer to 40000.
2 sig. figs: 37255 is between 37000 and 38000 but nearer to 37000.
3 sig. figs: 37255 is between 37200 and 37300 but nearer to 37300.

9

Correct Answer | **309.969**

Explanation
$3.1 \times 10^2 = 310$
$3.1 \times 10^{-2} = 0.031$
$310 - 0.031 = 309.969$

10

Correct Answer | **7/10**

Explanation
Turn second fraction upside down and multiply 7/40 × 20/5
Reduce to get 7/10.

11

Correct Answer | **20**

Explanation
$30 \times 40 = 1200$
$1200 \div 60 = 20$

12

Correct Answer | **901**

Explanation
$476 \div 1.12 = 425$
$425 + 476 = 901$

13

Correct Answer | **B; 3n + 1**

Explanation
Common difference is 3.
Add 1 to adjust.

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Eddie Says

Answers

14

Correct Answer

a; 5
b; 20
c; 45
d; 80
e; 125

Explanation
$T_1 = 5 \times 1^2 = 5 \times 1 = 5$
$T_2 = 5 \times 2^2 = 5 \times 4 = 20$
$T_3 = 5 \times 3^2 = 5 \times 9 = 45$
$T_4 = 5 \times 4^2 = 5 \times 16 = 80$
$T_5 = 5 \times 5^2 = 5 \times 25 = 125$

15

Correct Answer

A; $-5a^2 + 7a$

Explanation
$-3a^2 + a - 2a^2 + 6a$

16

Correct Answer

C; $x \leq -4$

Explanation
-Take 4 from both sides to get $6x \leq -24$
Divide both sides by 6

17

Correct Answer

20

Explanation
$60 - a + 3a + 30 + 4a - 30 = 180$
$60 + 6a = 180$
$6a = 120$
$a = 20$

18

Correct Answer

A; $7pq^4r$

Explanation
The HCF of 7 and 21 is 7.
Choose the smaller of the powers of each letter.

19

Correct Answer

1

Explanation
$(-16 \div 2) + (72 \div 8) = -8 + 9$

20

Correct Answer

A; $8x^2 - 12x - 36$

Explanation
$2x(4x + 6) - 6(4x + 6) = 8x^2 + 12x - 24x - 36$

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Answers

Eddie Says

21 Correct Answer: **1/7**

Explanation
The gradient of the given line is -7.
A perpendicular line will have gradient 1/7, so that the gradients of the two lines multiply to give -1.

22 Correct Answer: **57**

Explanation
There are £95 in 5 bags, so each bag contains £95 ÷ 5 = £19.
B gets 3 bags, i.e. 3 × £19 = £57.

23 Correct Answer: **1503**

Explanation
$668 \times 2\frac{1}{4} = 668 + 668 + 668 \div 4 = 668 + 668 + 167$

24 Correct Answer: **126000**

Explanation
There are 100 × 100 = 10 000 cm^2 in 1 m^2.

25 Correct Answer: **45**

Explanation
Sum of exterior angles is 360°.
360° ÷ 8 = 45°

26 Correct Answer: **245**

Explanation
Two circles and a rectangle.
The base of the rectangle is the circumference of the circle.
$2 \times \pi \times 3^2 + 6 \times \pi \times 10$

27 Correct Answer: **a; radius = 6.20
b; surface area = 484**

Explanation
Radius = $^3\sqrt{((3 \times 1000) \div (4 \times \pi))}$
Surface area = $4 \times \pi \times r^2$
Don't round off the radius to find the surface area.

Maths Answers and Explanations
Key Stage 3 • Year 7-9

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Answers

Eddie Says

28 Correct Answer: **10.4**

Explanation
Work out $3^2 + 10^2 = 109$.
$\sqrt{109} = 10.440...$

29 Correct Answer: **31.3**

Explanation
$x = 12 \times \tan69°$

30 Correct Answer: **13.4**

Explanation
$x = 12 \div \sin64°$

31 Correct Answer: **3**

Explanation
T2, T4, T6

32 Correct Answer: **0.56**

Explanation
$0.8 \times 0.6 + 0.2 \times 0.4 = 0.48 + 0.08 = 0.56$

33 Correct Answer: **1/4**

Explanation
A total score of 5 can be obtained by getting 1 + 4, 2 + 3, 3 + 2 or 4 + 1. That's 4 outcomes out of $4 \times 4 = 16$ possible outcomes.
4/16 reduces to ¼.

34 Correct Answer: **C; C**

Explanation
The line C goes through the most points and follows the general direction of the points.

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Answers

Eddie Says

35

Correct Answer

E; 130 cm to 135 cm

Explanation
No. of children in class = 1 + 3 + 7 + 5 + 4 + 3 + 1 = 24
We need to find the 12th and 13th child in order of height.
They will both be in the 130 cm to 135 cm group, because the first 11 children are in the first 3 groups shown.

36

Correct Answer

1030

Explanation
Total is $(2 \times 42.5) + (5 \times 47.5) + (9 \times 52.5) + (3 \times 57.5) + (1 \times 62.5) = 1030$ kg

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Year 7

Number

- Use Place Value for All Numbers
- Understand Order for All Numbers
- Use Concepts and Vocabulary for All Numbers
- Use Four Operations for All Numbers
- Use Conventional Notation for Priority of Operations
- Use Relationships Between Operations
- Understand Integer Powers/Real Roots
- Interpret/Compare Standard Form Numbers
- Work Interchangeably with Terminating Decimals and Fractions
- Define, Interpret and Compare Percentages
- Interpret Fractions/Percentages as Operators
- Use Standard Units of Measure
- Round/Approximate Numbers Appropriately
- Use Approximation to Estimate/Calculate Answers
- Use Calculators/Technology for Accuracy
- Appreciate Infinite Sets

Algebra

- Use and Interpret Algebraic Notation
- Substitute Numerical Values for Formulae/ Expressions
- Understand Expressions, Equations, Inequalities, Terms and Factors
- Simplify Algebraic Expressions to Maintain Equivalence
- Use Standard Mathematical Formulae
- Translate Situations/Procedures into Expressions,
- Formulae and Graphs
- Solve Linear Equations (One Variable)
- Use Coordinates in All Four Quadrants
- Use Linear and Quadratic Graphs (One Variable)
- Interpret Relationships Algebraically and Graphically
- Use Linear Equations (Two Variables) and Gradients
- Use Linear/Quadratic Graphs to Estimate/ Approximate
- Use a Variety of Graphs to Resolve Problems
- Generate Terms of a Sequence
- Use Sequences to Find the nth Term
- Use Geometric Sequences

Ratio, Proportion and Rates of Change

- Change Between Related Standard Units
- Use Scale Factors/Diagrams and Maps
- Express One Quantity as a Fraction of Another
- Use Ratio Notation
- Divide/Express Quantities as Ratios
- Understand How to Express Multiplicative Relationships
- Relate Ratio Language to Fractions and Linear Functions
- Solve Problems Involving Percentage Change
- Solve Problems Involving Direct and Inverse Proportion
- Solve Problems Involving Compound Units

Year 7 continued

Geometry and Measures

- Derive and Apply Formulae
- Solve Problems Involving Perimeters and Areas of 2D Shapes
- Draw and Measure Line Segments and Angle
- Use Mathematical Instruments and Perpendicular Distance
- Use Terms/Notation in Drawings
- Use Standard Conventions for Labelling Triangles
- Derive and Illustrate Properties of Plane Figures
- Identify and Describe Translations, Rotations and Reflections
- Identify and Construct Congruent Triangles
- Apply the Properties of Angles
- Understand the Relationship Between Parallel Lines and Angles
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- Apply Facts About Angles and Sides
- Solve Right-Angled Triangle Problems
- Use 3D Shape Knowledge to Solve Problems
- Interpret Mathematical Relationships Algebraically/Geometrically

Probability

- Record, Describe and Analyse Probability Experiments
- Understand Probability Outcomes
- Enumerate Sets Using Tables, Grids and Diagrams
- Calculate Theoretical Probability

Statistics

- Understand Variables, Representation, Measures and Spread
- Construct/Interpret Appropriate Representations for Data
- Understand the Relationship Between Two Variables

Year 8

Number

- Use Place Value for All Numbers
- Understand Order for All Numbers
- Use Concepts and Vocabulary for All Numbers
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Year 8 continued

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Year 9

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Statistics
• Understand Variables, Representation, Measures and Spread • Construct/Interpret Appropriate Representations for Data • Understand the Relationship Between Two Variables

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Answer Sheet

Maths Assessment
Key Stage 4

Maths Answers and Explanations

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Answers

Eddie Says

1 | Correct Answer | **2.91**

Explanation
$0.3 \times 0.3 = 0.09$
$3 - 0.09 = 2.91$

2 | Correct Answer | **3**

Explanation
$= (9 \times 3)^{1/3}$
$= 27^{1/3}$
$= \sqrt[3]{27}$
$= 3$

3 | Correct Answer | **15/37**

Explanation
Three digits recur, so this is 405 over 999, which reduces.
Divide top and bottom by 27 or by 9 and 3 in stages.

4 | Correct Answer | **1/3**

Explanation
LCM of 15, 6 and 10 is 30
$14/30 - 25/30 + 21/30 = 10/30 = 1/3$

5 | Correct Answer | **-7/60**

Explanation
First work out $5/6 \times 7/10 = 7/12$.
Then work out $7/15 - 7/12 = 28/60 - 35/60 = -7/60$.

6 | Correct Answer | **36**

Explanation
$(12 \times 18)^{1/3}$
$= 216^{1/3}$
$= \sqrt[3]{216}$
$= 6$
$6^2 = 36$

7 | Correct Answer | **B; 4.06×10^6**

Explanation
$4 \times 10^6 = 4\,000\,000$
$6 \times 10^4 = 60\,000$
$4\,000\,000 + 60\,000 = 4\,060\,000 = 4.06 \times 10^6$

Maths Answers and Explanations

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Answers

Eddie Says

8

Correct Answer

A; 72500

B; 73500

Explanation
The number n lies between 72 500 and 73 500, in order for it to be rounded to 73 000 to the nearest thousand.

9

Correct Answer

A; (√20)/4

Explanation
4/80 reduces to 1/20.
Multiply top and bottom by √20.
Remember 20 = 4 × 5.

10

Correct Answer

A; y = 4 + 2x

Explanation
2y - 4x = 8
2y = 8 + 4x
y = 4 + 2x

11

Correct Answer

D; (4x - 1) (x + 10)

Explanation
We look for factor pairs that multiply to give -40 and add to give +39.
These are 40 and -1.
Factorise $4x^2 + 40x - x - 10$ in pairs.

12

Correct Answer

C; x = 6.71

D; x = -1.04

Explanation
$-3x^2 + 17x + 21 = 0$
Use quadratic formula with a=-3   b=17   c=21

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

13

Correct Answer

C; identity

Explanation
3(x + 4) simplifies to 3x + 12 so this is true for all values of x.

Maths Answers and Explanations

Eddie Says

Answers

14

Correct Answer

B; $y = (x + 2)(x + 3)$

D; $y = (x + 3)(x + 2)$

E; $y = x^2; + 5x + 6$

Explanation
The line passes through (-3, 0) and (-2, 0), so $y = (x + 2)(x + 3)$.
This is $y = x^2 + 5x + 6$.

15

Correct Answer

A; $(1\frac{1}{2}, 0)$

D; $(-\frac{1}{4}, 0)$

Explanation
When $y = 0$,
$8x^2 - 10x - 3 = 0$
$(2x - 3)(4x + 1) = 0$
$x = -\frac{1}{4}, 1\frac{1}{2}$

16

Correct Answer

A; $y = 4x - 5$

C; $y + 5 = 4x$

Explanation
It crosses the y-axis at -5 and has a gradient of 4 (1 to the right and 4 up).
So $y = mx + c$ becomes $y = 4x - 5$.
$y + 5 = 4x$ is a rearrangement of this.

17

Correct Answer

-2

Explanation
Rearrange to get $5x - 2 = 10y$
$10y = 5x - 2$
$y = \frac{1}{2}x - 0.2$ has a gradient of $\frac{1}{2}$.
Product of gradients of perpendicular lines is always -1, so gradient of perpendicular line will be -2, since $-2 \times \frac{1}{2} = -1$.

18

Correct Answer

A; $10x^4 + 9x^3 - 4x - 5$

Explanation
Divide each coefficient by 4.
Subtract 3 from each index.

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Answers

Eddie Says

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19 | Correct Answer | **5**

Explanation

$15 - 5x \leq 2(1 - x)$
$15 - 5x \leq 2 - 2x$
$15 - 2 \leq 5x - 2x$
$13 \leq 3x$
$3x \geq 13$
$x \geq 13/3 = 4.33333...$

---

20 | Correct Answer | **B; x = 6.23**
D; x = 0.107

Explanation
Use the following values in the quadratic formula:
$a=3 \quad b=-19 \quad c=2$

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

---

21 | Correct Answer | **a; x = 3**
b; y = 3

Explanation
Substitute for y to get:
$18 - (6 - x)^2 = x^2$
$18 - (36 - 12x + x^2) = x^2$
$-18 + 12x - x^2 = x^2$
$2x^2 - 12x + 18 = 0$
$X^2 - 6x + 9 = 0$
$(x - 3)^2 = 0$
$x = 3$
$y = 6 - 3 = 3$

---

22 | Correct Answer | **57963.70**

Explanation
$50\,000 \times 1.03^5$

---

23 | Correct Answer | **4.5**

Explanation
$y = kx$
$123.5 = 19k$
$k = 123.5 \div 19 = 6.5$
$y = 6.5x$
$x = y \div 6.5 = 29.25 \div 6.5 = 4.5$

Maths Answers and Explanations

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Answers

Eddie Says

24

Correct Answer

6.7

Explanation
$(1 - x/100)^{10} = 0.5$
Work out the 10th root of 0.5 = 0.933.
$x/100 = 1 - 0.933 = 0.066967...$
$x = 6.6967$

25

Correct Answer

25.1

Explanation
Vol = $1 \div 3 \times \pi \times 2^2 \times 6$

26

Correct Answer

11.9

Explanation
Use Pythagoras' Theorem to get:
$AG^2 = 4^2 + 5^2 + 10^2 = 16 + 25 + 100 = 141$
$AG = \sqrt{141}$

27

Correct Answer

14.0

Explanation
Use the cosine rule to get $QR^2 = 12^2 + 22^2 - 2 \times 12 \times 22 \times \cos 35°$. Answer must be 14.0 and not just 14 to show the third significant figure.
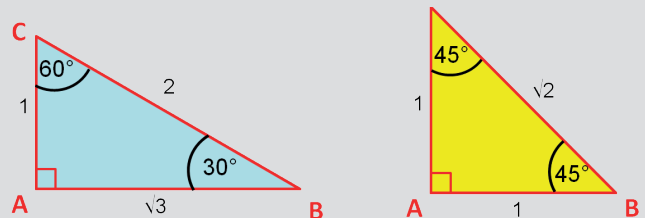
28

Correct Answer

41.8

Explanation
$\theta = \sin^{-1}(6/9)$

29

Correct Answer

B; √3/2

Explanation

In the blue triangle, cos 30° = adj/hyp = $\sqrt{3}/2$

Maths Answers and Explanations

Key Stage 4 • Year 10-11

Answers

Eddie Says

30

Correct Answer

48

Explanation
The tangent SU and the diameter PT meet at right angles, so $\angle$PTU = 90°
$\angle$TUP = 180° - 90° - 42° = 48°

31

Correct Answer

53

Explanation
$\angle$ACB = 2 $\angle$APB so a = 74°
Triangle ACB is isosceles, because AC = BC = radius.
$\angle$ABC = (180° - 74°) ÷ 2 = 106° ÷ 2 = 53°

32

Correct Answer

193.5

Explanation
$(h + 1.6)/400 = \tan 26°$
$h + 1.6 = 400\tan 26° = 195.093035$
$h = 193.493...$

33

Correct Answer

17.8

Explanation
Area = ½ × 6.2 × 7 × sin125°

34

Correct Answer

1/6

Explanation
There are 6 doubles out of 36.
6/36 reduces to 1/6.

35

Correct Answer

35

Explanation
There are 20 + 25 + n + 10 + 5 = 60 + n coins in total.
There are 10 10p coins.
$10/(60 + n) = 2/19$
$190 = 2(60 + n)$
$190 = 120 + 2n$
$2n = 70$
$n = 35$

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Answers

Eddie Says

36 Correct Answer $\boxed{32/95}$

Explanation
$16/20 \times 4/19 + 4/20 \times 16/19$
$= 64/380 + 64/380$
$= 128/380$
$= 64/190$
$= 32/95$

37 Correct Answer $\boxed{19}$

Explanation
With 20 people, we are looking for the 10th and 11th mark when placed in order. These are 17 and 21, the mean of which is 19.

38 Correct Answer $\boxed{10}$

Explanation
A = 7
B = 55 - 9 - 7 = 39
C = 100 - 35 - 39 - 9 - 7 = 10

39 Correct Answer $\boxed{5.22}$

Explanation
Step 1
Mean = (12 + 14 + 10 + 20 + 24) ÷ 5 = 80 ÷ 5 = 16

Step 2
$(12 - 16)^2 = (-4)^2 = 16$
$(14 - 16)^2 = (-2)^2 = 4$
$(10 - 16)^2 = (-6)^2 = 36$
$(20 - 16)^2 = (4)^2 = 16$
$(24 - 16)^2 = (8)^2 = 64$

Step 3
Mean of 16, 4, 36, 16 and 64 = (16 + 4 + 36 + 16 + 64) ÷ 5 = 136 ÷ 5 = 27.2
Variance = 27.2
Standard Deviation = $\sqrt{27.2}$ = 5.22

National Curriculum Topic List
Key Stage 4 • Year 10-11

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Year 10

Number

- Apply Systematic Listing Strategies (Including Product Rule)
- Estimate Powers and Roots of Positive Numbers
- Calculate with Roots and Integer (Fractional) Indice
- Calculate Exactly with Fractions and Multiples of Pi
- Calculate with Numbers in Standard Form $A \times 10^n$, Where $1 \leq A < 10$ and n is An Integer
- Change Recurring Decimals into Their Corresponding Fractions and Vice Versa
- Identify and Work with Fractions in Ratio Problems
- Apply/Interpret Limits of Accuracy When Rounding/Truncating

Algebra

- Simplify/Manipulate Algebraic Expressions/ Fractions
- Know the Difference Between an Equation and an Identity
- Argue Mathematically to Show Algebraic Expressions are Equivalent
- Use Algebra to Support and Construct Arguments
- Interpret Simple Expressions as Functions, Inverse Functions or Composite Functions
- Use $y = mx + c$ to Identify Parallel and Perpendicular Lines
- Find the Equation of a Line
- Identify and Interpret Roots, Intercepts and Turning Points of Quadratic Functions Graphically
- Deduce Roots Algebraically
- Recognise, Sketch and Interpret Graphs of Linear/ Quadratic/Cubic/Reciprocal Functions
- Plot and Interpret Graphs to Resolve Simple Kinematic Problems
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- Deduce Expressions to Calculate the nth Term of Linear and Quadratic Sequences

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- Compare Lengths, Areas and Volumes Using Ratio Notation/Scale Factors
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- Interpret Equations that Describe Direct and Inverse Proportion
- Interpret the Gradient of a Straight Line Graph as a Rate of Change
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- Set Up, Solve and Interpret Answers in Growth and Decay Problems

Year 10 continued

Geometry and Measures

- Interpret and Use Fractional and Negative Scale Factors for Enlargements
- Identify and Apply Circle Definitions and Properties
- Construct and Interpret Plans and Elevations of 3D Shapes
- Interpret and Use Bearings
- Calculate Arc Lengths, Angles and Areas of Sectors of Circles
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Probability

- Apply the Property that the Probabilities of an Exhaustive Set of Mutually Exclusive Events Sum to 1
- Use a Probability Model to Predict the Outcomes
- Calculate the Probability of Independent and Dependent Combined Events

Statistics

- Infer Properties of Populations or Distributions From a Sample
- Interpret and Construct Tables and Line Graphs for Time Series Data
- Interpret, Analyse and Compare the Distributions of Data Sets from Univariate Empirical Distributions
- Apply Statistics to Describe a Population
- Use and Interpret Scatter Graphs of Bivariate Data

Year 11

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- Identify and Work with Fractions in Ratio Problems
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