Comprehension Answer Key

1. **B**
2. **C**
3. **B**
4. **C**
5. **A**
6. **C**
7. **B**
8. **C**
9. **D**

English section two part A

Model Answers

1.

The woods are special to the poet because they offer a peaceful and enchanting escape from his daily responsibilities. As he stops to watch the woods fill up with snow, he is captivated by their quiet beauty and the serene atmosphere. The woods are "lovely, dark and deep," which suggests that they hold a mysterious allure for him. This moment allows the poet to pause and reflect, enjoying the simple pleasure of nature. However, he recognizes that he cannot stay there indefinitely because he has "promises to keep," meaning he has duties or commitments to fulfil. The woods symbolize a place of rest and contemplation, providing a contrast to the obligations that await him.

2.

(a) The quotation "He gives his harness bells a shake / To ask if there is some mistake." refers to the poet's horse reacting to the unexpected stop in the middle of the woods. The horse shakes its harness bells as if questioning why they have stopped where there is no farmhouse nearby. It is not accustomed to stopping in such isolated places, especially on a dark evening. This action personifies the horse, making it seem like it is communicating its confusion to the poet. The lines highlight the unusual nature of the stop and emphasize the stillness and quietness of the surroundings, broken only by the sound of the bells.

(b) The quotation "And miles to go before I sleep." indicates that the poet has a long journey ahead and cannot linger in the woods. The repetition of this line emphasizes the importance of his responsibilities and the distance he must travel before he can rest. It suggests that although he is tempted to stay and enjoy the peacefulness of the woods, he is reminded of his obligations and the need to move on. The line can also symbolize the tasks or goals one has to accomplish in life before reaching a point of rest or fulfilment.

Answer Key for 11+ The St Olave's Grammar School, Stage 2, Practice Test, Mathematics

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1.

If the numbers from 1 to 100 are written out in sequence and repeated many times, what is the 250th digit of the sequence?

Answer:

First, write out the numbers from 1 to 100 in sequence:

1, 2, 3, …, 98, 99, 100

Now, determine how many digits this sequence has.

- Numbers from 1 to 9: single-digit numbers (1 digit each)

    o Total digits: 9 × 1 = 9 digits

- Numbers from 10 to 99: two-digit numbers (2 digits each)

    o Total numbers: 90 numbers (from 10 to 99)

    o Total digits: 90 × 2 = 180 digits

- Number 100: a three-digit number (3 digits)

    o Total digits: 3 digits

Total digits in one full sequence from 1 to 100:

9 + 180 + 3 = **192 digits**

Since the sequence is repeated, we need to find the 250th digit.

Divide 250 by 192:

- 250 ÷ 192 ≈ 1 full sequence with 58 digits remaining.

So, after one full sequence (192 digits), we have 250 - 192 = **58 digits remaining** into the second sequence.

Now, we need to find out which number and which digit corresponds to the 58th digit in the sequence.

Let's list the digits:

- First 9 digits: numbers 1 to 9 (digits 1 to 9)

- Next 180 digits: numbers 10 to 99 (digits 10 to 189)

- Next 3 digits: number 100 (digits 190 to 192)

Since the remaining digits are within the two-digit numbers, let's calculate how many two-digit numbers we have to consider.

Digits from 10 to 189 (180 digits) correspond to numbers 10 to 99.

Number of digits after the first 9 digits: 58 - 9 = **49 digits**

Now, each two-digit number contributes 2 digits.

Number of two-digit numbers to reach 49 digits:

49 ÷ 2 = 24.5

So, after 24 two-digit numbers, we have used 24 × 2 = 48 digits.

Digits used so far: 9 (from 1-9) + 48 = 57 digits

We need 58 digits, so the next digit is the first digit of the 25th two-digit number.

The 25th two-digit number after 10 is:

10 + 24 = **34**

So, the number is **34**

Now, determine whether the 58th digit is the first or second digit of 34.

Since we have used 57 digits so far, the 58th digit is the second digit of 34.

So, the 58th digit is **4**

Therefore, the 250th digit is 4.

2.

Mia collected the following number of stamps over five days.

Day	Mon	Tue	Wed	Thu	Fri
Number of stamps	5	8	x	10	7

(a) The mean number of stamps collected per day is 8. What is the value of x?

Answer:

Mean = (Total stamps) ÷ (Number of days)

Total stamps = Mean × Number of days = 8 × 5 = 40 stamps

Sum of known stamps: 5 + 8 + 10 + 7 = 30 stamps

So, x = Total stamps - Sum of known stamps

x = 40 - 30 = **10**

(b) Mia's friend collected 25% more stamps than Mia over the five days. How many stamps did Mia's friend collect?

Answer:

Mia's total stamps = 40

25% more than Mia's stamps:

Additional stamps = 25% of 40 = 0.25 × 40 = 10 stamps

Friend's total stamps = Mia's stamps + Additional stamps

Friend's stamps = 40 + 10 = **50**

3.

Write in figures the following number:

Seven hundred and twelve thousand, thirty-six.

Answer:

Seven hundred and twelve thousand = 712,000

Add thirty-six: 712,000 + 36 = **712,036**

4.

Calculate the following:

(a)   11 × 11

Answer:

11 × 11 = **121**

(b)   111 × 111

Answer:

111 × 111

We can calculate:

- 111 × 111 = (100 + 11) × (100 + 11) = 10000 + 2×100×11 + 11×11 = 10000 + 2200 + 121 = 12321

Or directly:

111 × 111 = **12,321**

(c) 0.11 × 0.11

Answer:

0.11 × 0.11 = (11/100) × (11/100) = (11 × 11)/(100 × 100) = 121/10,000 = 0.0121

Therefore, 0.11 × 0.11 = 0.0121

5.

A car travels for 7,200 seconds.

How many hours is this?

Answer:

1 hour = 60 minutes = 60 × 60 seconds = 3,600 seconds

Number of hours = Total seconds ÷ Seconds per hour

Number of hours = 7,200 ÷ 3,600 = **2 hours**

6.

Which two fractions add together to make 1? Circle two.

- **A.** 1⁄4
- **B.** 2⁄5
- **C.** 3⁄5
- **D.** 3⁄4
- **E.** 4⁄5

Answer:

We need to find two fractions that add up to 1.

Let's check combinations:

Option A (1/4) and Option D (3/4):

1/4 + 3/4 = 1

Therefore, the fractions are 1⁄4 and 3⁄4.

7.

Sam has one hundred and fifty 2p coins.

How many 20p coins are needed to increase Sam's total amount to £5?

Answer:

Value of Sam's coins:

- Each 2p coin is worth £0.02

- Total value = 150 × £0.02 = £3.00

Amount needed to reach £5:

- £5.00 - £3.00 = £2.00

Number of 20p coins needed to make £2.00:

- Each 20p coin is worth £0.20

- Number of coins = £2.00 ÷ £0.20 = 10 coins

Therefore, 10 coins are needed.

8.

A shaded right-angled triangle with a height of 4 cm and a base of 6 cm is placed inside a rectangle measuring 8 cm by 6 cm.

What fraction of the rectangle is shaded? Give your answer in its lowest form.

Answer:

Area of the rectangle:

- Width × Height = 8 cm × 6 cm = 48 cm²

Area of the triangle:

- (Base × Height) ÷ 2 = (6 cm × 4 cm) ÷ 2 = 24 cm² ÷ 2 = 12 cm²

Fraction of rectangle that is shaded:

- Fraction = Area of triangle ÷ Area of rectangle = 12 cm² ÷ 48 cm² = 12/48

Simplify the fraction:

- Divide numerator and denominator by 12: (12 ÷ 12)/(48 ÷ 12) = 1/4

Therefore, the fraction is 1⁄4.

9.

A train arrives at its destination at 18:45.

It was half-way through its journey at 15:30.

How long was the train's journey in hours and minutes?

Answer:

Time from halfway point (15:30) to arrival (18:45):

- 18:45 - 15:30 = 3 hours 15 minutes

Since 15:30 is halfway through the journey, total journey time is:

- Total journey time = 2 × (3 hours 15 minutes) = 6 hours 30 minutes

Therefore, the journey was 6 hours 30 minutes long.

10.

Liam needs to practice piano for 120 hours before his exam.

He practices for 2 hours every Saturday starting on 2nd January.

In which month will Liam be ready to take his exam?

Answer:

Number of hours practiced per week: 2 hours

Number of weeks needed: 120 hours ÷ 2 hours/week = 60 weeks

Starting from 2nd January, add 60 weeks:

- 60 weeks ≈ 60 ÷ 4 ≈ 15 months

From January, counting 15 months ahead:

- January + 15 months = March of the next year

Therefore, Liam will be ready in March of the next year.

But let's be precise.

- 60 weeks is 1 year and 8 weeks.

Starting from 2nd January, 1 year later is 2nd January next year.

Add 8 weeks: February and March.

So, Liam will be ready in **March**.

11.

I think of a number.

I multiply it by 6 and then add 4.

The answer is 40.

What was the number I first thought of?

Answer:

Let the number be *n*.

According to the problem:

6n + 4 = 40

Subtract 4 from both sides:

6n = 36

Divide both sides by 6:

n = 36 ÷ 6 = **6**

12.

Complete the missing boxes in the following table.

Put the type of triangle that can be made using the three given lengths on the bottom row.

Write: equilateral, isosceles, scalene, or not possible.

Side 1	Side 2	Side 3	Type of Triangle
5 cm	5 cm	5 cm	Equilateral
7 cm	7 cm	10 cm	Isosceles

Side 1 Side 2 Side 3 Type of Triangle

 8 cm   15 cm 17 cm Scalene

Answer:

- For the first triangle: All sides equal ⇒ Equilateral

- For the second triangle: Two sides equal ⇒ Isosceles

- For the third triangle: All sides different ⇒ Scalene

13.

Two beakers contain water.

- *Beaker A contains 200 ml of water.*

- *Beaker B contains 500 ml of water.*

What fraction of the amount of water in Beaker B is in Beaker A?

Answer:

Fraction = Amount in Beaker A ÷ Amount in Beaker B

Fraction = 200 ml ÷ 500 ml = 2/5

Simplify if necessary, but 2/5 is already in lowest terms.

Therefore, the fraction is 2⁄5.

14.

A large bottle of juice holds 30% more than a small bottle.

If one large bottle and two small bottles contain 2,210 ml in total, what is the capacity of the small bottle?

Answer:

Let the capacity of the small bottle be *x* ml.

Then the large bottle is 30% more than *x*:

Large bottle = x + 0.30x = 1.30x

Total volume:

Large bottle + 2 × Small bottle = 1.30x + 2x = (1.30x + 2x) = 3.30x

Set up the equation:

3.30x = 2,210 ml

Solve for *x*:

x = 2,210 ml ÷ 3.30

x = 2,210 ml ÷ 3.30 = 2210 ÷ 3.3 = 670 ml

Therefore, the capacity of the small bottle is 670 ml.

15.

(a) What percentage of his pocket money did Jack spend on games?

- Total pocket money: £50

- Amount spent on games: £15

Percentage spent on games:

Percentage = (Amount spent on games ÷ Total pocket money) × 100%

Percentage = (£15 ÷ £50) × 100% = 30%

Answer: 30%

(b) Jack spent £15 more on food than on savings

£20+5 = £25 spent on Food and Savings

16.

Answer Key:

Let the three consecutive numbers be:

- First number: n
- Second number: $n + 1$
- Third number: $n + 2$

According to the problem:

$$n + (n + 1) + (n + 2) = 18$$

Simplify the equation:

$$3n + 3 = 18$$

Subtract 3 from both sides:

$$3n = 15$$

Divide both sides by 3:

$$n = 5$$

So, the three numbers are:

- First number: $n = 5$
- Middle number: $n + 1 = 6$
- Third number: $n + 2 = 7$

Final Answer:

6

17.

Sarah answered 80% of the questions correctly on a test with 50 questions.

Then she answered 75% correctly on a test with 40 questions.

What was Sarah's overall percentage score for the two tests?

Answer:

First test:

- Number of correct answers: 80% of 50 = 0.80 × 50 = 40

Second test:

- Number of correct answers: 75% of 40 = 0.75 × 40 = 30

Total questions: 50 + 40 = 90

Total correct answers: 40 + 30 = 70

Overall percentage:

Percentage = (Total correct answers ÷ Total questions) × 100%

Percentage = (70 ÷ 90) × 100% ≈ 77.78%

Rounded to the nearest whole number: **78%**

18.

A bag contains coloured balls.

- *There are 20 red balls numbered 1–20.*

- *There are 30 blue balls numbered 1–30.*

- *There are 10 green balls numbered 1–10.*

(a) If a ball is picked at random, what is the probability that the number on it is 15?

Answer:

Total number of balls = 20 + 30 + 10 = 60

Number of balls numbered 15:

- Red ball numbered 15

- Blue ball numbered 15

- Green ball numbered 10 (doesn't have 15)

Total balls with number 15 = 1 (red) + 1 (blue) = 2

Probability = Number of favourable outcomes ÷ Total outcomes

Probability = 2 ÷ 60 = 1/30

Simplify fraction:

1/30 cannot be simplified further.

Therefore, the probability is 1⁄30.

(b) If a ball is picked at random, what is the probability that the colour is green and the number is 5?

Answer:

Number of green balls numbered 5:

- Only 1 (since green balls are numbered 1–10)

Probability = Number of favourable outcomes ÷ Total outcomes

Probability = 1 ÷ 60

Simplify fraction:

1/60 cannot be simplified further.

Therefore, the probability is 1⁄60.

(c) Write true or false for each statement below.

- **Statement A:** If a ball is picked at random, there is an equal chance of picking a multiple of 5 as picking a multiple of 6.

First, find total multiples of 5 among all balls.

Numbers from 1 to 30 (since blue balls go up to 30), but green only up to 10, red up to 20.

Multiples of 5 from 1 to 30: 5, 10, 15, 20, 25, 30

Total multiples of 5 in numbers 1–30: 6 numbers

Now, count how many balls have these numbers.

- For each multiple of 5, count how many balls have that number.

For number 5:

- Red ball numbered 5
- Blue ball numbered 5
- Green ball numbered 5

Total balls with number 5: 3

For number 10:

- Red, Blue, Green: 3 balls

For number 15:

- Red and Blue: 2 balls

For number 20:

- Red and Blue: 2 balls

For number 25:

- Only Blue: 1 ball

For number 30:

- Only Blue: 1 ball

Total balls numbered with multiples of 5:

- Numbered 5: 3 balls

- Numbered 10: 3 balls

- Numbered 15: 2 balls

- Numbered 20: 2 balls

- Numbered 25: 1 ball

- Numbered 30: 1 ball

Total = 3 + 3 + 2 + 2 + 1 + 1 = 12 balls

Now, multiples of 6 from 1 to 30: 6, 12, 18, 24, 30

Numbers: 6, 12, 18, 24, 30

For number 6:

- Red, Blue, Green: 3 balls

Number 12:

- Red and Blue: 2 balls

Number 18:

- Red and Blue: 2 balls

Number 24:

- Only Blue: 1 ball

Number 30:

- Only Blue: 1 ball

Total balls numbered with multiples of 6:

- Numbered 6: 3 balls

- Numbered 12: 2 balls

- Numbered 18: 2 balls

- Numbered 24: 1 ball

- Numbered 30: 1 ball

Total = 3 + 2 + 2 + 1 + 1 = 9 balls

So, there are 12 balls numbered with multiples of 5 and 9 balls numbered with multiples of 6.

Therefore, the chances are not equal.

Answer: False

- **Statement B:** If a ball is picked at random, there is a greater chance of picking a red ball than a green ball.

Total red balls: 20

Total green balls: 10

Therefore, probability of red ball: 20/60 = 1/3

Probability of green ball: 10/60 = 1/6

Since 1/3 > 1/6, there is a greater chance of picking a red ball.

Answer: True

19.

Choose the first point to reflect. It is easier to start with a point which is closest to the mirror line (the line of reflection). The new point will be exactly the same distance away from the mirror line as the original point.
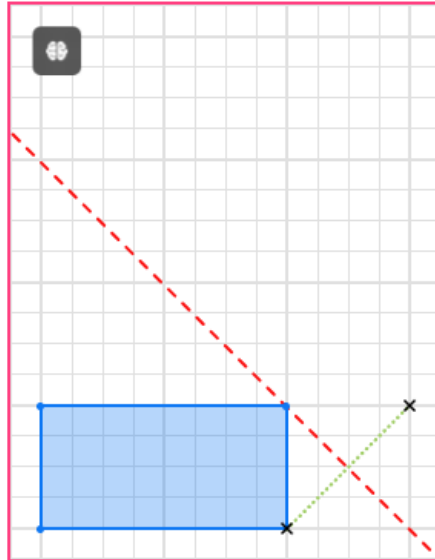
Here is a second and a third point being reflected to give its image. The remaining point is on the mirror line and does not move (it is an invariant point).
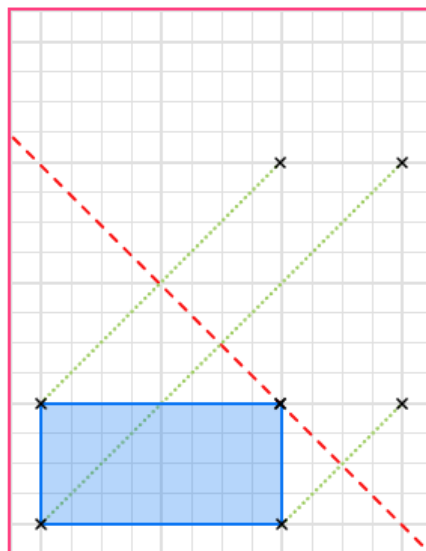
To finish the diagram we can join up the reflected points.
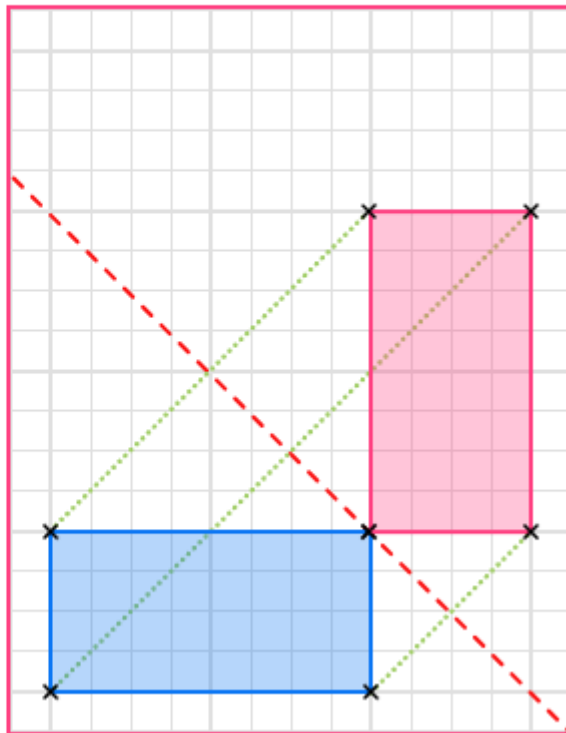
20.

Here is a graph to convert between pounds (lb) and kilograms (kg).

(a) A package weighs 35 pounds.

How many kilograms is this?

Answer: Any number between 15 and 16kg

(b) If 1 kilogram is approximately 2.2 pounds, how many pounds (to the nearest whole) is 10 kilograms?

Answer:

10 kg × 2.2 lb/kg = 22 lb

Therefore, 10 kilograms is approximately 22 pounds.

21.

In an 80-minute basketball game, the possession of the ball between Team X and Team Y was in the ratio 3 : 5.

If points were scored at a rate of 2 points per 4 minutes of possession, what was the final score?

Answer:

Total game time: 80 minutes

Total possession ratio: 3 + 5 = 8 parts

Team X possession time: (3/8) × 80 = 30 minutes

Team Y possession time: (5/8) × 80 = 50 minutes

Points scored per 4 minutes of possession: 2 points

Team X points:

- Number of 4-minute intervals: 30 minutes ÷ 4 = 7.5 intervals

- Points scored: 7.5 intervals × 2 points = 15 points

Team Y points:

- Number of 4-minute intervals: 50 minutes ÷ 4 = 12.5 intervals

- Points scored: 12.5 intervals × 2 points = 25 points

Therefore, final score:

Team X: 15 points

Team Y: 25 points

Answer: Team X 15, Team Y 25

22.

The net makes a cuboid.

When the cuboid is made up, it has a volume of 216 cm³.

What is the area of one face of the cuboid?

Answer:

Since the net forms a cuboid, and we are told the volume is 216 cm³.

Let's assume the cuboid has dimensions l × w × h

Since the net is not provided, we cannot determine exact dimensions.

However, since the volume is 216 cm³, we can think of possible integer dimensions that multiply to 216.

Possible dimensions:

- 6 × 6 × 6 = 216 (since 6 × 6 × 6 = 216)

Therefore, the cuboid could be a cube with sides of 6 cm.

Area of one face:

- For a cube, each face is a square with area = side²

- Area = 6 cm × 6 cm = 36 cm²

Therefore, the area of one face is 36 cm².

23.

(a)

- **Candy bar cost:** 60p

- **Chocolate bar cost:** Candy bar cost - 15p

- **Calculation:** 60p - 15p = **45p**

Answer: One chocolate bar costs **45p**.

(b)

- **Cost of 4 chocolate bars:** 4 × 45p = 180p = £1.80

- **Cost of 3 candy bars:** 3 × 60p = 180p = £1.80

- **Total cost:** £1.80 (chocolate bars) + £1.80 (candy bars) = **£3.60**

Answer: The total cost is **£3.60**.

(c)

- **Total cost of purchase:** £3.60

- **Amount you have:** £5.00

- **Change received:** £5.00 - £3.60 = **£1.40**

Answer: You will receive **£1.40** in change.

24.

Emma makes a scale model of a building.

The building is 100 m tall and the scale of the model is 1 : 50.

How tall is the model in centimetres?

Answer:

Scale 1 : 50 means:

1 unit on model represents 50 units on the actual building.

Height of model = Actual height ÷ Scale factor

Height of model = 100 m ÷ 50 = 2 m

Convert to centimetres:

1 m = 100 cm

So, 2 m = 200 cm

Therefore, the model is 200 cm tall.

25.

Alex spends 1⁄3 of his money on books, then 1⁄2 of what he has left on games.

What fraction of his original amount of money does Alex have left?

Answer:

Let the original amount be 1 (or 1 whole)

Amount spent on books: (1⁄3) × 1 = 1⁄3

Amount remaining: 1 - 1⁄3 = 2⁄3

Amount spent on games: (1⁄2) × (2⁄3) = 1⁄3

Amount remaining after games: 2⁄3 - 1⁄3 = 1⁄3

Therefore, Alex has 1⁄3 of his original money left.

26.

The clock says 12:00.

(a) What is the time when the minute hand has moved through 270°?

Answer:

Minute hand moves 360° in 60 minutes, so 6° per minute.

Degrees moved: 270°

Time passed: 270° ÷ 6° per minute = 45 minutes

So, 12:00 + 45 minutes = **12:45**

(b) What is the time when the hour hand has moved through 90° from the original time shown?

Answer:

Hour hand moves 360° in 12 hours, so 30° per hour.

Degrees moved: 90°

Time passed: 90° ÷ 30° per hour = 3 hours

So, 12:00 + 3 hours = **3:00**

27.

Write down the next number in each of the following sequences:

(a) 196   169   144   121   _____

Answer:

These are squares of decreasing integers:

- $14^2 = 196$
- $13^2 = 169$
- $12^2 = 144$
- $11^2 = 121$
- Next: $10^2 = $ **100**

(b) 3   12   13   52   53   212   213   852   _____

Answer:

Observe the pattern:

- Multiply by 4, then add 1
- 3 × 4 = 12
- 12 + 1 = 13
- 13 × 4 = 52
- 52 + 1 = 53
- 53 × 4 = 212
- 212 + 1 = 213
- 213 × 4 = 852
- 852 + 1 = **853**

Answer: 853

(c) 1   1   2   6   24   _____

Answer:

This is a sequence of factorials:

- 0! = 1
- 1! = 1
- 2! = 2
- 3! = 6
- 4! = 24
- Next: 5! = 120

Answer: 120

28.

This is a picture of a cylinder.

The cylinder has a radius of 4 cm and a height of 10 cm.

What is the volume of the cylinder?

(Use π = 3.14)

Answer:

Volume of a cylinder: V = π x radius² x height
(or in simpler terms area of the circle x height)

V = 3.14 × (4 cm)² × 10 cm

V = 3.14 × 16 cm² × 10 cm

V = 3.14 × 160 cm³

V = 502.4 cm³

Therefore, the volume is 502.4 cm³.

29.

Step 1: Set Up the Equation

Given:

$$3A = A^2$$

Step 2: Solve for A

Rewriting the equation:

$$A^2 - 3A = 0$$

Factor out A:

$$A(A - 3) = 0$$

Set each factor equal to zero:

1. $A = 0$
   - However, the question states that $A \neq 0$.
   - Therefore, we discard this solution.
2. $A - 3 = 0$
   - Solve for A:

$$A = 3$$
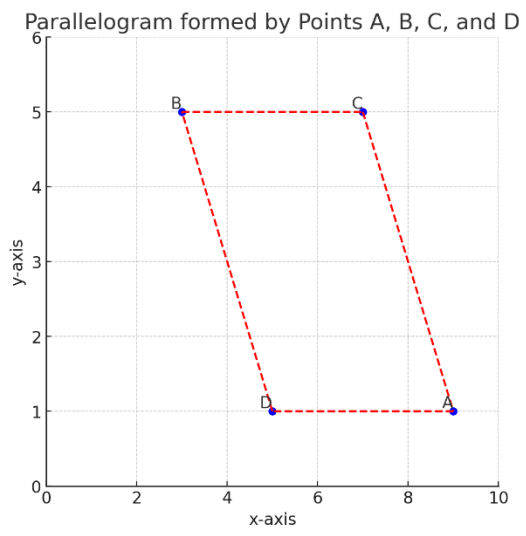
Step 3: Verify the Solution

Check if $A = 3$ satisfies the original equation:

- Left side:
$$A + A + A = 3 + 3 + 3 = 9$$
- Right side:
$$A \times A = 3 \times 3 = 9$$
- Since both sides are equal, $A = 3$ is a valid solution.

Final Answer:

3

30.

Parallelogram formed by Points A, B, C, and D

Therefore, the coordinates of point A are (9, 1).