

✈ ETIHAD AIRWAYS PILOT APTITUDE TEST

MATHEMATICS — PRACTICE PAPER

COMPASS System | 50 Questions | Time Allowed: 40 Minutes | No Calculator Permitted

INSTRUCTIONS

- 1. This paper contains 50 questions across 11 mathematical topics tested in the Etihad Airways COMPASS pilot aptitude assessment.
- 2. Select the one best answer from the four options (A, B, C, D) for each question.
- 3. No calculator is permitted. All calculations must be performed mentally or on rough paper.
- 4. Time allowed is 40 minutes. Aim to spend no more than 48 seconds per question.

SECTION 1: Fractions & Percentages

Q1. While checking a flight schedule, A fuel reserve is 46% of a 10,000 L tank. How many litres are in reserve?

- A) 5,400 L
- B) 5,100 L
- C) 4,600 L
- D) 5,000 L

Q2. While checking a flight schedule, Express $\frac{5}{10}$ as a percentage, to 1 decimal place.

- A) 50.0%
- B) 37.5%
- C) 62.5%
- D) 42.0%

Q3. While checking a flight schedule, A pilot earns AED 35,000 monthly and receives a 9% increase. What is the new salary?

- A) AED 35,700
- B) AED 38,150
- C) AED 35,700
- D) AED 38,000

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Q4. While checking a flight schedule, Simplify: $\frac{6}{11} + \frac{1}{11}$.

- A) $\frac{7}{11}$
- B) $\frac{7}{20}$
- C) $\frac{1}{11}$
- D) $\frac{6}{12}$

Q5. While checking a flight schedule, A flight carries 264 passengers. 27% are in business class. How many are in economy?

- A) 179
- B) 239
- C) 71
- D) 192

SECTION 2: Speed, Distance & Time

Q6. While checking a flight schedule, An aircraft travels at 460 knots for 3 hours 0 minutes. What distance does it cover?

- A) 960 NM
- B) 1,200 NM
- C) 1,500 NM
- D) 1380 NM

Q7. While checking a flight schedule, A jet covers 1,450 km in 3.0 hours. What is its average speed?

- A) 750 km/h
- B) 600 km/h
- C) 450 km/h
- D) 483 km/h

Q8. While checking a flight schedule, Convert 250 knots to km/h. (1 knot = 1.852 km/h)

- A) 463.0 km/h
- B) 370.4 km/h
- C) 555.6 km/h
- D) 463.0 km/h

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Q9. While checking a flight schedule, A flight route is 4,900 km long and the aircraft flies at 760 km/h. Estimate the flight time.

- A) 6.0 h
- B) 4.5 h
- C) 7.5 h
- D) 6.4 h

Q10. While checking a flight schedule, An aircraft descends from 32,400 ft at 1700 ft/min. How long does the descent take?

- A) 15 min
- B) 30 min
- C) 19 min
- D) 20 min

SECTION 3: Ratios & Scales

Q11. While checking a flight schedule, A chart has scale 1:400,000. A route measures 7 cm. What is the actual distance?

- A) 18 km
- B) 28 km
- C) 600 km
- D) 240 km

Q12. While checking a flight schedule, Fuel and additive are mixed in the ratio 8:1. If 54 L of fuel are used, how much additive is needed?

- A) 12 L
- B) 5 L
- C) 8 L
- D) 7 L

Q13. While checking a flight schedule, A bonus of AED 10,200 is shared in the ratio 2:3:4. What is the largest share?

- A) AED 4,533
- B) AED 4,000
- C) AED 2,000
- D) AED 3,000

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Q14. If 5 engineers can service 15 aircraft in 3 days, how many aircraft can 8 engineers service in 3 days?

Q14. While checking a flight schedule, 6 engineers service 14 aircraft in 3 days. At the same rate, how many aircraft can 8 engineers service?

- A) 30 aircraft
- B) 24 aircraft
- C) 18 aircraft
- D) 18 aircraft

Q15. While checking a flight schedule, A runway is 6 cm on a map and 3.0 km in reality. What is the map scale?

- A) 1:25,000
- B) 1:100,000
- C) 1:50,000
- D) 1:50,000

SECTION 4: Unit Conversions

Q16. While checking a flight schedule, Convert 15,000 ft to metres. (1 ft = 0.3048 m)

- A) 6,096.0 m
- B) 4,572.0 m
- C) 3,657.6 m
- D) 4572.0 m

Q17. While checking a flight schedule, Convert 60,000 kg to pounds. (1 kg = 2.205 lb)

- A) 132,300 lb
- B) 110,250 lb
- C) 165,375 lb
- D) 132,300 lb

Q18. While checking a flight schedule, Convert 90°C to Fahrenheit. ($F = \frac{9}{5}C + 32$)

- A) 194°F
- B) 248°F
- C) 176°F
- D) 212°F

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- B) 8,165 kg

Q19. While checking a flight schedule, Convert 13,600 lb to kg. (1 lb = 0.4536 kg)

- A) 5,443.2 kg
- B) 6,169.0 kg
- C) 7,257.6 kg
- D) 6,350.4 kg

Q20. While checking a flight schedule, Convert 0.7 nautical miles to metres. (1 NM = 1,852 m)

- A) 1,296 m
- B) 1,389 m
- C) 926 m
- D) 1,852 m

SECTION 5: Powers, Roots & Surds

Q21. While checking a flight schedule, Calculate: 2^7 .

- A) 512
- B) 64
- C) 128
- D) 256

Q22. While checking a flight schedule, Simplify: $\sqrt{144}$.

- A) 12
- B) 10
- C) 14
- D) 22

Q23. While checking a flight schedule, Calculate: $(5)^2 - (3)^2$.

- A) 9
- B) 16
- C) 25
- D) 36

Q24. While checking a flight schedule, Evaluate: $((4)^2)^2$.

- A) 16
- B) 1024
- C) 256
- D) 64

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- D) 729

Q25. While checking a flight schedule, Simplify: $\sqrt{0.00040}$.

- A) 0.020
- B) 0.007
- C) 0.014
- D) 0.070

SECTION 6: Areas, Volumes & Spaces

Q26. While checking a flight schedule, A rectangular hangar is 110 m long and 36 m wide. What is its area?

- A) 6,000 m²
- B) 3,960 m²
- C) 4,800 m²
- D) 3,600 m²

Q27. While checking a flight schedule, A cylindrical tank has radius 2.0 m and height 6 m. Find its volume ($\pi \approx 3.14$).

- A) 78.50 m³
- B) 75.36 m³
- C) 50.24 m³
- D) 31.40 m³

Q28. While checking a flight schedule, A triangular taxiway marking has base 7 m and height 5 m. What is its area?

- A) 20 m²
- B) 12 m²
- C) 17.5 m²
- D) 30 m²

Q29. While checking a flight schedule, The wingspan of an aircraft is 58 m. What is the radius of the circle swept by one wingtip?

- A) 32 m
- B) 29 m
- C) 20 m
- D) 64 m

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Q30. While checking a flight schedule, A cargo container measures 5 m × 4 m × 2.5 m. What is its volume?

- A) 30.0 m³
- B) 50.0 m³
- C) 40.0 m³
- D) 20.0 m³

SECTION 7: Probability & Statistics

Q31. While checking a flight schedule, A bag contains 6 red, 7 blue and 8 green balls. Probability of blue?

- A) 1/3
- B) 2/5
- C) 7/21
- D) 1/2

Q32. While checking a flight schedule, The scores are 70, 77, 84, 73, 81. What is the mean?

- A) 77
- B) 80
- C) 72
- D) 76

Q33. While checking a flight schedule, A die is rolled twice. Probability of getting an odd number on both rolls?

- A) 1/4
- B) 1/2
- C) 1/6
- D) 1/3

Q34. While checking a flight schedule, Find the range of: 14, 37, 23, 62, 30.

- A) 36
- B) 42
- C) 48
- D) 56

Q35. While checking a flight schedule, The average of 6 scores is 74. What is their total?

- A) 444
- B) 80
- C) 370
- D) 518

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SECTION 8: Algebraic Equations

Q36. While checking a flight schedule, Solve for x : $5x - 10 = 3x + 14$.

- A) $x = 6$
- B) $x = 12$
- C) $x = 10$
- D) $x = 14$

Q37. While checking a flight schedule, If $a = 4$ and $b = -3$, evaluate: $2a^2 - 3b$.

- A) 12
- B) 30
- C) 24
- D) 41

Q38. While checking a flight schedule, Factorise: $x^2 - 36$.

- A) $(x - 6)(x + 6)$
- B) $(x + 6)^2$
- C) $(x - 10)(x + 2)$
- D) $(x - 6)^2$

Q39. While checking a flight schedule, Solve for x : $2(x + 5) = 3x - 4$.

- A) $x = 12$
- B) $x = 14$
- C) $x = 4$
- D) $x = 10$

Q40. While checking a flight schedule, If $4x + 3y = 17$ and $y = 2$, find x .

- A) 3
- B) 3
- C) 1
- D) 5

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- B) 13 cm

SECTION 9: Trigonometry

Q41. While checking a flight schedule, In a right triangle, adjacent = 8 and hypotenuse = 12. What is $\cos \theta$?

- A) 1.20
- B) 0.50
- C) 0.75
- D) 0.67

Q42. While checking a flight schedule, What is $\sin(45^\circ)$?

- A) 0
- B) 0.5
- C) 0.707
- D) 0.866

Q43. While checking a flight schedule, A ladder 5.0 m long makes an angle of 60° with the ground. How high does it reach? ($\sin 60^\circ \approx 0.866$)

- A) 5.20 m
- B) 2.00 m
- C) 4.33 m
- D) 3.46 m

Q44. While checking a flight schedule, What is $\tan(45^\circ)$?

- A) $\sqrt{3}$
- B) 0.5
- C) 1
- D) 0.866

Q45. While checking a flight schedule, An aircraft is at 3,000 ft altitude and 9,000 ft from the runway along the glide path. What is $\sin$ of the glide angle?

- A) 0.20
- B) 0.33
- C) 0.60
- D) 0.40

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- B) 0.5

SECTION 10: Complex Operations

Q46. While checking a flight schedule, Calculate: $(140 \times 0.4) \div (12 \times 2)$.

- A) 3.0
- B) 1.5
- C) 2.3
- D) 2.0

Q47. While checking a flight schedule, A pilot works 9 h 25 min, 8 h 30 min and 8 h 45 min. What is the total?

- A) 24 h 30 min
- B) 26 h 40 min
- C) 22 h 00 min
- D) 26 h 15 min

Q48. While checking a flight schedule, An aircraft burns 1,600 kg/h. How much fuel is used in 2.67 h?

- A) 6,000 kg
- B) 3,200 kg
- C) 4,267 kg
- D) 4,800 kg

SECTION 11: Word Problems

Q49. While checking a flight schedule, A flight is delayed by 40 minutes. If the scheduled arrival was 14:10, what is the new arrival time?

- A) 15:10
- B) 14:35
- C) 14:50
- D) 15:00

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- A) 4h 55min

Q50. While checking a flight schedule, A team of 7 technicians can inspect an aircraft in 48 minutes. At the same rate, how long would 9 technicians take?

- A) 60.0 min
- B) 36.0 min
- C) 24.0 min
- D) 37.3 min

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ANSWER KEY & EXPLANATIONS

Q1. Correct Answer: C) 4,600 L

Explanation: Apply the stated formula carefully and check the units.

Q2. Correct Answer: A) 50.0%

Explanation: Apply the stated formula carefully and check the units.

Q3. Correct Answer: B) AED 38,150

Explanation: Apply the stated formula carefully and check the units.

Q4. Correct Answer: A) 7/11

Explanation: Apply the stated formula carefully and check the units.

Q5. Correct Answer: D) 192

Explanation: Apply the stated formula carefully and check the units.

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Explanation: $480 \times 2.5 = 1,200 \text{ NM}$

ANSWER KEY & EXPLANATIONS

Q6. Correct Answer: D) 1380 NM

Explanation: Apply the stated formula carefully and check the units.

Q7. Correct Answer: D) 483 km/h

Explanation: Apply the stated formula carefully and check the units.

Q8. Correct Answer: A) 463.0 km/h

Explanation: Apply the stated formula carefully and check the units.

Q9. Correct Answer: D) 6.4 h

Explanation: Apply the stated formula carefully and check the units.

Q10. Correct Answer: C) 19 min

Explanation: Apply the stated formula carefully and check the units.

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ANSWER KEY & EXPLANATIONS

Q11. Correct Answer: B) 28 km

Explanation: Apply the stated formula carefully and check the units.

Q12. Correct Answer: D) 7 L

Explanation: Apply the stated formula carefully and check the units.

Q13. Correct Answer: A) AED 4,533

Explanation: Apply the stated formula carefully and check the units.

Q14. Correct Answer: C) 18 aircraft

Explanation: Apply the stated formula carefully and check the units.

Q15. Correct Answer: C) 1:50,000

Explanation: Apply the stated formula carefully and check the units.

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ANSWER KEY & EXPLANATIONS

Q16. Correct Answer: D) 4572.0 m

Explanation: Apply the stated formula carefully and check the units.

Q17. Correct Answer: A) 132,300 lb

Explanation: Apply the stated formula carefully and check the units.

Q18. Correct Answer: A) 194°F

Explanation: Apply the stated formula carefully and check the units.

Q19. Correct Answer: B) 6,169.0 kg

Explanation: Apply the stated formula carefully and check the units.

Q20. Correct Answer: A) 1,296 m

Explanation: Apply the stated formula carefully and check the units.

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ANSWER KEY & EXPLANATIONS

Q21. Correct Answer: C) 128

Explanation: Apply the stated formula carefully and check the units.

Q22. Correct Answer: A) 12

Explanation: Apply the stated formula carefully and check the units.

Q23. Correct Answer: B) 16

Explanation: Apply the stated formula carefully and check the units.

Q24. Correct Answer: C) 256

Explanation: Apply the stated formula carefully and check the units.

Q25. Correct Answer: A) 0.020

Explanation: Apply the stated formula carefully and check the units.

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Explanation: $P(\text{blue}) = 3/10$

ANSWER KEY & EXPLANATIONS

Q26. Correct Answer: B) 3,960 m²

Explanation: Apply the stated formula carefully and check the units.

Q27. Correct Answer: B) 75.36 m³

Explanation: Apply the stated formula carefully and check the units.

Q28. Correct Answer: C) 17.5 m²

Explanation: Apply the stated formula carefully and check the units.

Q29. Correct Answer: B) 29 m

Explanation: Apply the stated formula carefully and check the units.

Q30. Correct Answer: B) 50.0 m³

Explanation: Apply the stated formula carefully and check the units.

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Q38. Solve: $x^2 - 9 = 0$

ANSWER KEY & EXPLANATIONS

Q31. Correct Answer: C) 7/21

Explanation: Apply the stated formula carefully and check the units.

Q32. Correct Answer: A) 77

Explanation: Apply the stated formula carefully and check the units.

Q33. Correct Answer: A) 1/4

Explanation: Apply the stated formula carefully and check the units.

Q34. Correct Answer: C) 48

Explanation: Apply the stated formula carefully and check the units.

Q35. Correct Answer: A) 444

Explanation: Apply the stated formula carefully and check the units.

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aircraft?

ANSWER KEY & EXPLANATIONS

Q36. Correct Answer: B) $x = 12$

Explanation: Apply the stated formula carefully and check the units.

Q37. Correct Answer: D) 41

Explanation: Apply the stated formula carefully and check the units.

Q38. Correct Answer: A) $(x - 6)(x + 6)$

Explanation: Apply the stated formula carefully and check the units.

Q39. Correct Answer: A) $x = 12$

Explanation: Apply the stated formula carefully and check the units.

Q40. Correct Answer: A) 3

Explanation: Apply the stated formula carefully and check the units.

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stopover. What is the total airborne time?

ANSWER KEY & EXPLANATIONS

Q41. Correct Answer: D) 0.67

Explanation: Apply the stated formula carefully and check the units.

Q42. Correct Answer: C) 0.707

Explanation: Apply the stated formula carefully and check the units.

Q43. Correct Answer: C) 4.33 m

Explanation: Apply the stated formula carefully and check the units.

Q44. Correct Answer: C) 1

Explanation: Apply the stated formula carefully and check the units.

Q45. Correct Answer: B) 0.33

Explanation: Apply the stated formula carefully and check the units.

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