

✈ 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. During an airport logistics briefing, A fuel reserve is 49% of a 10,500 L tank. How many litres are in reserve?

- A) 5,250 L
- B) 5,355 L
- C) 5,645 L
- D) 5,145 L

Q2. During an airport logistics briefing, Express $\frac{6}{11}$ as a percentage, to 1 decimal place.

- A) 37.5%
- B) 54.5%
- C) 42.0%
- D) 62.5%

Q3. During an airport logistics briefing, A pilot earns AED 36,500 monthly and receives a 10% increase. What is the new salary?

- A) AED 40,150
- B) AED 37,595
- C) AED 37,200
- D) AED 39,500

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Q4. During an airport logistics briefing, Simplify: $7/\{12\} + 1/\{12\}$.

- A) $2/3$
- B) $8/21$
- C) $7/13$
- D) $1/12$

Q5. During an airport logistics briefing, A flight carries 276 passengers. 28% are in business class. How many are in economy?

- A) 184
- B) 251
- C) 77
- D) 198

SECTION 2: Speed, Distance & Time

Q6. During an airport logistics briefing, An aircraft travels at 480 knots for 3 hours 30 minutes. What distance does it cover?

- A) 1,200 NM
- B) 1680 NM
- C) 960 NM
- D) 1,500 NM

Q7. During an airport logistics briefing, A jet covers 1,575 km in 3.5 hours. What is its average speed?

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

Q8. During an airport logistics briefing, Convert 275 knots to km/h. (1 knot = 1.852 km/h)

- A) 555.6 km/h
- B) 509.3 km/h
- C) 370.4 km/h
- D) 463.0 km/h

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Q9. During an airport logistics briefing, A flight route is 5,250 km long and the aircraft flies at 790 km/h. Estimate the flight time.

- A) 7.5 h
- B) 4.5 h
- C) 6.0 h
- D) 6.6 h

Q10. During an airport logistics briefing, An aircraft descends from 33,600 ft at 1800 ft/min. How long does the descent take?

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

SECTION 3: Ratios & Scales

Q11. During an airport logistics briefing, A chart has scale 1:450,000. A route measures 8 cm. What is the actual distance?

- A) 240 km
- B) 18 km
- C) 36 km
- D) 600 km

Q12. During an airport logistics briefing, Fuel and additive are mixed in the ratio 9:1. If 60 L of fuel are used, how much additive is needed?

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

Q13. During an airport logistics briefing, A bonus of AED 10,800 is shared in the ratio 2:3:4. What is the largest share?

- A) AED 4,000
- B) AED 3,000
- C) AED 4,800
- D) AED 2,000

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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. During an airport logistics briefing, 7 engineers service 15 aircraft in 3 days. At the same rate, how many aircraft can 9 engineers service?

- A) 19 aircraft
- B) 18 aircraft
- C) 24 aircraft
- D) 30 aircraft

Q15. During an airport logistics briefing, A runway is 7 cm on a map and 3.5 km in reality. What is the map scale?

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

SECTION 4: Unit Conversions

Q16. During an airport logistics briefing, Convert 16,500 ft to metres. (1 ft = 0.3048 m)

- A) 4,572.0 m
- B) 5029.2 m
- C) 3,657.6 m
- D) 6,096.0 m

Q17. During an airport logistics briefing, Convert 65,000 kg to pounds. (1 kg = 2.205 lb)

- A) 110,250 lb
- B) 132,300 lb
- C) 143,325 lb
- D) 165,375 lb

Q18. During an airport logistics briefing, Convert 95°C to Fahrenheit. ($F = \frac{9}{5}C + 32$)

- A) 176°F
- B) 212°F
- C) 248°F
- D) 203°F

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- B) 8,165 kg

Q19. During an airport logistics briefing, Convert 14,400 lb to kg. (1 lb = 0.4536 kg)

- A) 7,257.6 kg
- B) 5,443.2 kg
- C) 6,350.4 kg
- D) 6,531.8 kg

Q20. During an airport logistics briefing, Convert 0.8 nautical miles to metres. (1 NM = 1,852 m)

- A) 1,482 m
- B) 926 m
- C) 1,389 m
- D) 1,852 m

SECTION 5: Powers, Roots & Surds

Q21. During an airport logistics briefing, Calculate: 2^8 .

- A) 512
- B) 128
- C) 1024
- D) 256

Q22. During an airport logistics briefing, Simplify: $\sqrt{169}$.

- A) 13
- B) 23
- C) 11
- D) 15

Q23. During an airport logistics briefing, Calculate: $(6)^2 - (4)^2$.

- A) 49
- B) 36
- C) 16
- D) 20

Q24. During an airport logistics briefing, Evaluate: $((5)^2)^2$.

- A) 625
- B) 3125
- C) 25
- D) 125

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- D) 729

Q25. During an airport logistics briefing, Simplify: $\sqrt{0.00050}$.

- A) 0.022
- B) 0.014
- C) 0.007
- D) 0.070

SECTION 6: Areas, Volumes & Spaces

Q26. During an airport logistics briefing, A rectangular hangar is 120 m long and 39 m wide. What is its area?

- A) 3,600 m²
- B) 4,680 m²
- C) 6,000 m²
- D) 4,800 m²

Q27. During an airport logistics briefing, A cylindrical tank has radius 2.5 m and height 7 m. Find its volume ($\pi \approx 3.14$).

- A) 137.38 m³
- B) 78.50 m³
- C) 31.40 m³
- D) 50.24 m³

Q28. During an airport logistics briefing, A triangular taxiway marking has base 8 m and height 6 m. What is its area?

- A) 24.0 m²
- B) 12 m²
- C) 30 m²
- D) 20 m²

Q29. During an airport logistics briefing, The wingspan of an aircraft is 62 m. What is the radius of the circle swept by one wingtip?

- A) 32 m
- B) 64 m
- C) 20 m
- D) 31 m

Q30. During an airport logistics briefing, A cargo container measures 6 m × 5 m × 2.5 m. What is its volume?

- A) 40.0 m³
- B) 75.0 m³
- C) 20.0 m³
- D) 30.0 m³

SECTION 7: Probability & Statistics

Q31. During an airport logistics briefing, A bag contains 7 red, 8 blue and 9 green balls. Probability of blue?

- A) 2/5
- B) 1/2
- C) 8/24
- D) 1/3

Q32. During an airport logistics briefing, The scores are 71, 78, 85, 74, 82. What is the mean?

- A) 78
- B) 76
- C) 72
- D) 80

Q33. During an airport logistics briefing, A die is rolled twice. Probability of getting a 6 on both rolls?

- A) 1/3
- B) 1/36
- C) 1/2
- D) 1/6

Q34. During an airport logistics briefing, Find the range of: 15, 38, 24, 63, 31.

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

Q35. During an airport logistics briefing, The average of 6 scores is 75. What is their total?

- A) 375
- B) 81
- C) 525
- D) 450

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SECTION 8: Algebraic Equations

Q36. During an airport logistics briefing, Solve for x: $6x - 11 = 4x + 15$.

- A) $x = 6$
- B) $x = 13$
- C) $x = 14$
- D) $x = 10$

Q37. During an airport logistics briefing, If $a = 5$ and $b = -4$, evaluate: $2a^2 - 3b$.

- A) 30
- B) 62
- C) 12
- D) 24

Q38. During an airport logistics briefing, Factorise: $x^2 - 49$.

- A) $(x - 11)(x + 2)$
- B) $(x + 7)^2$
- C) $(x - 7)^2$
- D) $(x - 7)(x + 7)$

Q39. During an airport logistics briefing, Solve for x: $2(x + 6) = 3x - 5$.

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

Q40. During an airport logistics briefing, If $5x + 3y = 18$ and $y = 2$, find x.

- A) 3
- B) 1
- C) 2
- D) 5

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- B) 13 cm

SECTION 9: Trigonometry

Q41. During an airport logistics briefing, In a right triangle, adjacent = 9 and hypotenuse = 13. What is $\cos \theta$?

- A) 0.75
- B) 1.20
- C) 0.50
- D) 0.69

Q42. During an airport logistics briefing, What is $\sin(60^\circ)$?

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

Q43. During an airport logistics briefing, A ladder 5.5 m long makes an angle of 60° with the ground. How high does it reach? ($\sin 60^\circ \approx 0.866$)

- A) 4.76 m
- B) 3.46 m
- C) 2.00 m
- D) 5.20 m

Q44. During an airport logistics briefing, What is $\tan(60^\circ)$?

- A) 0.5
- B) 0.866
- C) 1.732
- D) $\sqrt{3}$

Q45. During an airport logistics briefing, An aircraft is at 3,300 ft altitude and 9,500 ft from the runway along the glide path. What is $\sin$ of the glide angle?

- A) 0.40
- B) 0.60
- C) 0.35
- D) 0.20

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- B) 0.5

SECTION 10: Complex Operations

Q46. During an airport logistics briefing, Calculate: $(160 \times 0.4) \div (13 \times 2)$.

- A) 2.5
- B) 1.5
- C) 3.0
- D) 2.0

Q47. During an airport logistics briefing, A pilot works 10 h 30 min, 9 h 30 min and 8 h 45 min. What is the total?

- A) 24 h 30 min
- B) 26 h 15 min
- C) 28 h 45 min
- D) 22 h 00 min

Q48. During an airport logistics briefing, An aircraft burns 1,700 kg/h. How much fuel is used in 3.00 h?

- A) 3,200 kg
- B) 5,100 kg
- C) 4,800 kg
- D) 6,000 kg

SECTION 11: Word Problems

Q49. During an airport logistics briefing, A flight is delayed by 45 minutes. If the scheduled arrival was 14:10, what is the new arrival time?

- A) 14:55
- B) 14:35
- C) 15:00
- D) 15:10

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- A) 4h 55min

Q50. During an airport logistics briefing, A team of 8 technicians can inspect an aircraft in 48 minutes. At the same rate, how long would 10 technicians take?

- A) 38.4 min
- B) 36.0 min
- C) 24.0 min
- D) 60.0 min

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ANSWER KEY & EXPLANATIONS

Q1. Correct Answer: D) 5,145 L

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

Q2. Correct Answer: B) 54.5%

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

Q3. Correct Answer: A) AED 40,150

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

Q4. Correct Answer: A) 2/3

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

Q5. Correct Answer: D) 198

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: B) 1680 NM

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

Q7. Correct Answer: B) 450 km/h

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

Q8. Correct Answer: B) 509.3 km/h

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

Q9. Correct Answer: D) 6.6 h

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

Q10. Correct Answer: A) 19 min

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

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ANSWER KEY & EXPLANATIONS

Q11. Correct Answer: C) 36 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: C) AED 4,800

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

Q14. Correct Answer: A) 19 aircraft

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

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

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

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ANSWER KEY & EXPLANATIONS

Q16. Correct Answer: B) 5029.2 m

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

Q17. Correct Answer: C) 143,325 lb

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

Q18. Correct Answer: D) 203°F

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

Q19. Correct Answer: D) 6,531.8 kg

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

Q20. Correct Answer: A) 1,482 m

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

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ANSWER KEY & EXPLANATIONS

Q21. Correct Answer: D) 256

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

Q22. Correct Answer: A) 13

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

Q23. Correct Answer: D) 20

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

Q24. Correct Answer: A) 625

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

Q25. Correct Answer: A) 0.022

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) 4,680 m²

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

Q27. Correct Answer: A) 137.38 m³

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

Q28. Correct Answer: A) 24.0 m²

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

Q29. Correct Answer: D) 31 m

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

Q30. Correct Answer: B) 75.0 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) 8/24

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

Q32. Correct Answer: A) 78

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

Q33. Correct Answer: B) 1/36

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

Q34. Correct Answer: D) 48

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

Q35. Correct Answer: D) 450

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

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aircraft?

ANSWER KEY & EXPLANATIONS

Q36. Correct Answer: B) $x = 13$

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

Q37. Correct Answer: B) 62

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

Q38. Correct Answer: D) $(x - 7)(x + 7)$

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

Q39. Correct Answer: B) $x = 14$

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

Q40. Correct Answer: C) 2

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) 0.69

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

Q42. Correct Answer: B) 0.866

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

Q43. Correct Answer: A) 4.76 m

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

Q44. Correct Answer: C) 1.732

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

Q45. Correct Answer: C) 0.35

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

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