



Normalization

1NF 2NF 3NF

Chapter: SQL • Level ★★ • Time: 30 min

SCORE

___ / 20

Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

✓ Apply 1NF atomic values ✓ 2NF full key dependence ✓ 3NF no transitive deps ✓ Recognise redundancy



Section A • Concept Check

• BEGINNER

4 × 1 = 4

- 1 1NF forbids:

☐ A. multiple values in one cell ☐ B. numbers

☐ C. keys ☐ D. joins
- 2 2NF concerns:

☐ A. partial dependence on composite keys

☐ B. dates ☐ C. strings ☐ D. indexes
- 3 3NF removes:

☐ A. transitive dependencies ☐ B. tables

☐ C. rows ☐ D. types
- 4 Normalization mainly reduces:

☐ A. redundancy and anomalies ☐ B. query length

☐ C. tables count ☐ D. security



Section B • Problem Solving

• INTERMEDIATE

2 + 3 × 3 = 11

- 5 1NF: every cell holds one _____ value.
- 6 Update anomalies happen with _____ data.
- 7 Fix 1NF: phone column contains '0301, 0302'.
- _____
- 8 Spot the 3NF issue: orders(id, customer_id, customer_city).
- _____

- 9 What anomaly happens updating a duplicated address?
- _____



Section C • Challenge

• CHALLENGE

5

- 10 Why might a data warehouse denormalize?
- _____

🧠 Reflection — the most useful thing I learned: _____

A ___/4 B ___/11 C ___/5 Total ___/20

Teacher's Signature _____

Parent's Signature _____

🔗 ANSWER KEY — FOLD OR CUT BEFORE HANDING OUT

1-A 2-A 3-A 4-A | 5 atomic 6 redundant/duplicated 7 = Move phones to a phones(user_id, phone) table - one per row 8 = customer_city depends on customer, not the order - move it to customers 9 = Update anomaly - some copies get missed and disagree | 10 = Fewer joins = faster analytical reads

