WONDERLEARNERZ PRIMARY ACADEMY â€" OFFICIAL ANSWER KEY & MARKING SCHEME

Time and Clocks: Worksheet 3 [ANSWER KEY]

Grade 5 | Mathematics | Ch 16: Time and Clocks | Total Marks: 19 | Time: 45 Minutes

Q1. Convert 4:45 PM into 24-hour clock time. [1 Mark]

Correct Answer: 16:45

Explanation: For PM times after noon, add 12 to the hour: 4 + 12 = 16. So 16:45.

Q2. Convert 21:15 in 24-hour format into 12-hour AM/PM format. [1 Mark]

Correct Answer: 9:15 PM

Explanation: Subtract 12 from 21: 21 - 12 = 9. So 9:15 PM.

Q3. How many minutes are in 3 hours and 25 minutes? [1 Mark]

Correct Answer: 205 minutes

Explanation: (3 x 60 = 180) + 25 = 205 minutes.

Q4. A film starts at 14:10 and ends at 16:35. What is the running time of the film? [1 Mark]

Correct Answer: 2 hours 25 minutes

Explanation: From 14:10 to 16:10 is 2 hours. From 16:10 to 16:35 is 25 minutes. Total = 2 h 25 min.

Q5. At the Harbor Marine Terminal, an engineering shift begins at 08:30 and concludes at 17:15. If workers take a 45-minute lunch break, how many net hours and minutes did they work? [1 Mark]

Correct Answer: 8 hours

Explanation: Total elapsed time = 8 hours 45 minutes. Deduct 45-minute lunch break: 8 hours net working time.

Q6. An express passenger train departs from Central Station at 10:45 AM and arrives at Coastal Terminal at 2:20 PM. How long was the train journey? [1 Mark]

Correct Answer: 3 hours 35 minutes

Explanation: 10:45 AM to 1:45 PM is 3 hours. 1:45 PM to 2:20 PM is 35 minutes. Total = 3 hours 35 minutes.

Q7. A satellite broadcast begins at 19:50 and lasts for 1 hour and 40 minutes. At what 24-hour time does the broadcast end? [1 Mark]

Correct Answer: 21:30

Explanation: 19:50 + 10 min = 20:00. Remaining time = 1 h 30 min. 20:00 + 1 h 30 min = 21:30.

Q8. Complete the time conversion: 300 seconds = [?] minutes. [1 Mark]

Correct Answer: 5

Explanation: 300 / 60 = 5 minutes.

Q9. Fill in the elapsed time: Start = 09:20, End = 11:05, Elapsed = [?] minutes. [1 Mark]

Correct Answer: 105

Explanation: 1 hour 45 minutes = 60 + 45 = 105 minutes.

Q10. Emma says: '12:00 in the middle of the night is 12:00 PM.' Identify Emma's error and state the correct 12-hour and 24-hour designations. [1 Mark]

Correct Answer: 12:00 AM (or 00:00)

Explanation: Midnight is 12:00 AM (00:00 in 24-hour time). Noon is 12:00 PM.

Q11. A student calculates the difference between 3:50 PM and 5:10 PM as 2 hours 40 minutes by subtracting 3:50 from 5:10 directly. What is the correct elapsed time? [1 Mark]

Correct Answer: 1 hour 20 minutes

Explanation: Hours and minutes use base-60, not base-10. 3:50 to 4:00 is 10 min; 4:00 to 5:10 is 1 h 10 min. Total = 1 h 20 min.

Q12. Explain why minutes and seconds are based on multiples of 60 (sexagesimal) rather than 10 (decimal). **[2 Marks]**

Correct Answer: Historical astronomers in ancient Mesopotamia used base-60 because 60 is divisible by 2, 3, 4, 5, 6, 10, 12, 15, 20, and 30, making fractional divisions of time exceptionally simple.

Explanation: Base-60 offers superior fractional divisibility without recurring decimals.

Q13. How does the 24-hour clock eliminate ambiguity compared to the 12-hour AM/PM clock in international aviation schedules? **[2 Marks]**

Correct Answer: In 24-hour time, every moment in a day has a unique 4-digit number (e.g. 08:00 vs 20:00), preventing critical scheduling errors caused by mixing up AM and PM.

Explanation: Unique monotonic hour numbers eliminate typographical and verbal AM/PM confusion.

Q14. A flight departs Dubai at 02:30 (Dubai time) and lands in London after a 7-hour and 45-minute flight. If London is 4 hours behind Dubai, what local time does the flight arrive in London? **[2 Marks]**

Correct Answer: 06:15

Explanation: Departure = 02:30 Dubai. Flight duration = 7 h 45 min -> arrival at 10:15 Dubai time. London is 4 hours behind: 10:15 - 4 hours = 06:15 London time.

Q15. A digital stopwatch displays 3,745 seconds. Express this duration in hours, minutes, and seconds. **[2 Marks]**

Correct Answer: 1 hour, 2 minutes, 25 seconds

Explanation: 3,745 / 3,600 = 1 hour remainder 145 seconds. 145 / 60 = 2 minutes remainder 25 seconds. Result: 1 h 2 min 25 s.