16. TIME AND TEMPERATURE

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. How many seconds are in 2 hours?
   A) 3,600 seconds B) 7,200 seconds
   C) 12,000 seconds D) 60 seconds

Key: B) 7,200 seconds

Explanation: 1 hour = 3,600 seconds → 2 hours = 2 × 3,600 = 7,200 seconds.

2. What is 90 minutes in hours?
   A) 1.25 hours B) 1.5 hours
   C) 2 hours D) 2.5 hours

Key: B) 1.5 hours

Explanation: 60 minutes = 1 hour → 90 ÷ 60 = 1.5 hours.

3. If a concert starts at 8:00 PM and ends at 10:30 PM, how long is the concert?
   A) 1 hour 30 minutes B) 2 hours 30 minutes
   C) 2 hours 15 minutes D) 3 hours

Key: B) 2 hours 30 minutes

Explanation: From 8:00 to 10:00 = 2 hours, plus 30 minutes = 2 hours 30 minutes.

4. Convert 4,500 seconds into minutes.
   A) 60 minutes B) 75 minutes
   C) 90 minutes D) 100 minutes

Key: B) 75 minutes

Explanation: 60 seconds = 1 minute → 4,500 ÷ 60 = 75 minutes.

5. A flight departs at 3:15 PM and arrives at 5:45 PM. How long is the flight?
   A) 2 hours 30 minutes B) 2 hours 45 minutes
   C) 3 hours D) 3 hours 15 minutes

Key: A) 2 hours 30 minutes

Explanation: From 3:15 to 5:15 = 2 hours, plus 30 minutes = 2 hours 30 minutes.

ADVANCED LEVEL

More than One Answer Type

6. Which examples involve subtracting time?

A) Calculating the time left until an event starts.
B) Finding out how much time has passed since a meeting began.
C) Determining how long a task took by subtracting start time from end time.
D) Adding durations from multiple activities.

Key: A, B, C

Explanation: A, B, and C involve finding differences between times.

7. Identify the correct steps for calculating elapsed time.
A) Identify the start and end times.
B) Convert all times to seconds.
C) Subtract the start time from the end time.
D) Add the start and end times together.

Key: A, C

Explanation: Identify start and end times, then subtract.

8. Which of the following are valid examples of calculating time elapsed?
A) A concert starts at 7:00 PM and ends at 9:00 PM.
B) A bus arrives at 8:15 AM after leaving at 7:45 AM.
C) A movie runs for 90 minutes.
D) A meeting lasts from 1:00 PM to 2:30 PM.

Key: A, B, D

Explanation: These involve start and end times for elapsed time calculation.

Fill In the Blanks

9. If you walk for 1 hour and 45 minutes and then take a break for 30 minutes, the total time spent on your activity is _____ minutes.

Key: 135 minutes

Explanation: 1 hr 45 min = 105 minutes + 30 minutes = 135 minutes.

10. To convert 3 hours and 25 minutes into only minutes, you would calculate _____ minutes in total.

Key: 205 minutes

Explanation: 3 × 60 = 180 minutes + 25 = 205 minutes.

Matching Type

11. Match the Time Operations to Their Descriptions

Operations

1. Adding Time
2. Subtracting Time
3. Time Elapsed
4. Converting Time

Descriptions:

A. Finding the duration between a start and end time.
B. Calculating the total duration by combining hours and minutes.

C. Changing time from one unit to another, like minutes to seconds.
D. Determining the difference between two times, ensuring to borrow if needed.

Key: 1-B, 2-D, 3-A, 4-C

Answer the Following Questions

12. Alex arrives at the gym at 7:30 AM and works out for 45 minutes. After his workout, he spends 15 minutes stretching. What time does he leave the gym?

Key: 8:30 AM

Explanation: 45 + 15 = 60 minutes = 1 hour later → 7:30 + 1 hour = 8:30 AM.

13. Maria takes a bus from work at 4:10 PM and arrives home at 5:00 PM. How long was her bus ride?

Key: 50 minutes

Explanation: 4:10 to 5:00 = 50 minutes.

14. A concert starts at 8:00 PM and ends at 10:15 PM. How long is the concert?

Key: 2 hours 15 minutes

Explanation:

From 8:00 PM to 10:00 PM = 2 hours

From 10:00 PM to 10:15 PM = 15 minutes

Total: 2 hours + 15 minutes = 2 hours 15 minutes.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. If a recipe takes 1 hour and 45 minutes to bake, and you started at 2:30 PM, what time will it finish?
   A) 3:45 PM B) 4:15 PM C) 4:00 PM D) 5:15 PM

Key: B

Explanation: 2:30 + 1 hr 45 min = 4:15 PM.

2. What is the total time when adding 2 hours 20 minutes and 1 hour 45 minutes?
   A) 3 hours 55 minutes B) 4 hours 5 minutes
   C) 4 hours 10 minutes D) 4 hours 15 minutes

Key: B

Explanation: 20 + 45 = 65 minutes = 1 hr 5 min ? total 3 hr + 1 hr 5 min = 4 hr 5 min.

3. How many minutes are there in a week?

A) 1,440 minutes
B) 10,080 minutes
C) 7,200 minutes
D) 14,400 minutes

Key: B

Explanation: 24 × 7 = 168 hours × 60 = 10,080 minutes.

4. If you have 2 hours and 30 minutes, how many seconds do you have?
A) 9,000 seconds
B) 10,800 seconds
C) 8,500 seconds
D) 7,200 seconds

Key: A

Explanation: 2 hr 30 min = 150 minutes × 60 = 9,000 seconds.

5. A game lasts for 1 hour and 15 minutes. If it starts at 6:30 PM, what time does it end?
A) 7:45 PM
B) 7:30 PM
C) 8:00 PM
D) 8:15 PM

Key: A

Explanation:

Start time: 6:30 PM

Add 1 hour = 7:30 PM

Add 15 minutes = 7:45 PM

ADVANCED LEVEL

More than One Answer Type

6. Which of the following are common units of time?
A) Seconds (s)
B) Gallons (gal)
C) Minutes (min)
D) Hours (h)

Key: A, C, D

Explanation: Gallons (gal) is a unit of volume, not time. Seconds, minutes, and hours are common time units.

7. Identify the correct conversions between time units.
A) 1 hour = 60 minutes
B) 1 minute = 30 seconds
C) 1 day = 24 hours
D) 1 week = 7 days

Key: A, C, D

Explanation: 1 hour = 60 minutes (A), 1 day = 24 hours (C), 1 week = 7 days (D) are correct.
1 minute = 60 seconds, not 30 seconds (B is false).

8. Which of the following statements about adding time are true?
A) Always add minutes first.
B) If minutes exceed 60, convert to hours.
C) You can add hours without considering minutes.

D) Total minutes can be less than 60.

Key: B, D

Explanation:

B is true because if minutes exceed 60, they are converted to hours.

D is true because total minutes can be less than 60.

A is false (add hours and minutes separately, not necessarily minutes first).

C is false (minutes must be considered when adding time).

Fill In the Blanks

9. If a train departs at 1:30 PM and arrives at 3:45 PM, the total travel time is _____ hours and _____ minutes.

Key: 2, 15

Explanation: From 1:30 to 3:30 = 2 hours, plus 15 minutes = 2 hours 15 minutes.

10. A basketball game lasts for 2 hours and 10 minutes. If it starts at 5:20 PM, it will end at _____ PM.

Key: 7:30

Explanation: 5:20 PM + 2 hours = 7:20 PM, plus 10 minutes = 7:30 PM.

Matching Type

11. Match the Time Units to Their Equivalent Values

Units	**Equivalent Values**
1. 1 Hour	A. 24 Hours
2. 1 Day	B. 7 Days
3. 1 Week	C. 60 Seconds
4. 1 Minute	D. A. 60 Minutes

Key: 1-D, 2-A, 3-B, 4-C

Answer the Following Questions

12. James plans a weekend trip that starts on Friday at 5:00 PM and ends on Sunday at 3:00 PM. How many hours and minutes does James spend on his trip?

Key: 46 hours

Explanation: Friday 5:00 PM to Sunday 5:00 PM = 48 hours, subtract 2 hours (since ends at 3:00 PM) = 46 hours.

13. Sarah begins her homework at 4:15 PM and finishes at 6:45 PM. How long did she spend on her homework?

Key: 2 hours 30 minutes

Explanation: From 4:15 to 6:15 = 2 hours, plus 30 minutes = 2 hours 30 minutes.

14. A recipe says that a dish needs to be cooked for 1 hour and 20 minutes. If you start cooking at 6:00 PM, what time will the dish be ready?

Key: 7:20 PM

Explanation: 6:00 PM + 1 hour = 7:00 PM, plus 20 minutes = 7:20 PM.

FINDING STARTING TIME AND FINISHING TIME

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. A project starts on January 10 and ends on January 20. How many days does the project last?
   A) 9 days B) 10 days C) 11 days D) 12 days

Key: C

Explanation: Days counted: 20 - 10 + 1 = 11 days (including both start and end dates).

2. If a training session starts at 9:00 AM and lasts for 4 hours and 45 minutes, what time does it finish?
   A) 1:30 PM B) 1:45 PM C) 2:00 PM D) 2:15 PM

Key: B

Explanation: 9:00 AM + 4 hours = 1:00 PM, plus 45 minutes = 1:45 PM.

3. What is the total number of days between March 1 and April 1?
   A) 28 days B) 30 days C) 31 days D) 29 days

Key: C

Explanation: March has 31 days from March 1 to March 31; April 1 is the next day, so 31 days in between.

4. A movie starts at 7:00 PM and lasts for 2 hours and 10 minutes. What time does it end?
   A) 9:10 PM B) 9:20 PM C) 9:30 PM D) 9:00 PM

Key: A

Explanation: 7:00 PM + 2 hours = 9:00 PM, plus 10 minutes = 9:10 PM.

5. If a class starts at 1:00 PM and ends at 3:30 PM, how long is the class?
   A) 1 hour 30 minutes B) 2 hours
   C) 2 hours 15 minutes D) 2 hours 30 minutes

Key: D

Explanation: From 1:00 to 3:00 = 2 hours, plus 30 minutes = 2 hours 30 minutes.

ADVANCED LEVEL

More than One Answer Type

6. Identify the correct statements regarding leap years.
   A) Leap years occur every four years.
   B) February has 28 days in leap years.
   C) Leap years add an extra day to February (February 29).
   D) All years are leap years.

Key: A, C

Explanation: Leap years occur every 4 years (A). Leap years add an extra day to February (Feb 29) $\rightarrow$ 29 days in leap years (C). February has 29 days in leap years, not 28 (B false). Not all years are leap years (D false).

7. Which of the following calculations correctly represents finding days in a year?
   A) 1 year = 365 days.
   B) 1 year = 360 days.
   C) 1 leap year = 366 days.
   D) 1 year = 12 months.

Key: A, C, D

Explanation: A regular year = 365 days (A). A leap year = 366 days (C). 1 year = 12 months is also correct in a non-day count sense (D). 360 days is incorrect for a calendar year (B false).

8. Which of the following methods can be used to calculate the number of days between two dates?
   A) Manual counting of each day.
   B) Using a calendar or date calculator.
   C) Using a multiplication formula.
   D) Converting everything to hours.

Key: A, B, C

Explanation: Manual counting (A), using a calendar/date calculator (B), and using a multiplication formula (e.g., for regular intervals) (C) are valid. Converting to hours is impractical and indirect (D is not a standard direct method).

Fill In the Blanks

9. A class starts at 8:30 AM and lasts for 1 hour and 15 minutes. It will end at _____ AM.

Key: 9:45

Explanation: 8:30 AM + 1 hour = 9:30 AM, plus 15 minutes = 9:45 AM.

10. The duration of a seminar is 2 and it starts on September 5. It will end on _____ September.

Key: 7

Explanation: September 5 + 2 days = September 7.

Matching Type

11. Match the Time Calculation Methods to Their Examples

Methods

1. Finding Starting Time
2. Finding Finishing Time
3. Counting Days Manually
4. Using a Formula to Calculate Days

Examples

A. A concert finishes at 9:30 PM, lasting 2 hours; what time does it start?
B. Calculate the total days from January 1 to January 31 by counting each day.
C. A training session starts at 10:15 AM and lasts for 3 hours; what time does it finish?
D. Calculate days between March 1 and March 15 using the formula for counting days.

Key: 1-A, 2-C, 3-B, 4-D

Answer the Following Questions

12. A project is due on October 15. If you started working on it on October 1, how many days do you have to complete the project?

Key: 15 days

Explanation: Days from October 1 to October 15 inclusive = 15 days.

13. A library session starts at 1:15 PM and lasts for 2 hours and 30 minutes. What time does the session end?

Key: 3:45 PM

Explanation: 1:15 PM + 2 hours = 3:15 PM, plus 30 minutes = 3:45 PM.

14. You are planning a vacation that starts on June 10 and ends on June 20. How many days do you have for your vacation?

Key: 11 days

Explanation: Days from June 10 to June 20 inclusive = 11 days.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. If a meeting starts at 4:00 PM and lasts for 2 hours and 30 minutes, what time does it finish?

A) 5:30 PM B) 6:30 PM C) 7:00 PM D) 6:00 PM

Key: B

Explanation: 4:00 PM + 2 hours = 6:00 PM, plus 30 minutes = 6:30 PM.

2. A workshop ends at 5:15 PM and lasts for 1 hour and 45 minutes. What time does the workshop start?
   A) 3:30 PM B) 4:00 PM C) 3:15 PM D) 4:30 PM

Key: A

Explanation: 5:15 PM - 1 hour = 4:15 PM, minus 45 minutes = 3:30 PM.

3. Calculate the number of days from April 10 to April 25.
   A) 14 days B) 15 days C) 16 days D) 17 days

Key: C

Explanation: Days counted: 25 - 10 + 1 = 16 days inclusive.

4. If a class starts at 8:30 AM and lasts for 2 hours and 15 minutes, what time does it end?
   A) 10:45 AM B) 10:00 AM C) 10:15 AM D) 11:00 AM

Key: A

Explanation: 8:30 AM + 2 hours = 10:30 AM, plus 15 minutes = 10:45 AM.

6. How many days are there from December 1 to December 31?
   A) 30 days B) 31 days C) 29 days D) 28 days

Key: B

Explanation: December has 31 days from December 1 to December 31.

ADVANCED LEVEL

More than One Answer Type

6. Which of the following are correct methods for finding the starting time?
   A) Identify the finishing time.
   B) Add the duration to the finishing time.
   C) Subtract the duration from the finishing time.
   D) Use a calendar to determine the start date.

Key: A, C, D

Explanation:

Identify finishing time (A) is the first step.

Subtract duration from finishing time (C) gives starting time.

Using a calendar to determine the start date (D) is valid for dates.

Adding duration to finishing time (B) would give a later time, not the start.

7. What are the correct steps for finding the finishing time?
   A) Identify the starting time.
   B) Subtract the duration from the starting time.

C) Add the duration to the starting time.
D) Count the days from the starting time.

Key: A, C

Explanation:

Identify starting time (A) is the first step.

Add duration to starting time (C) gives finishing time.

Subtracting duration (B) gives earlier time, not finish.

Counting days (D) is not necessary for simple finishing time calculation.

8. Which examples involve calculating the number of days between two dates?
A) Counting days from March 1 to March 15.
B) Finding the duration of a class.
C) Calculating the days between January 5 and February 10.
D) Determining how long a movie lasts.

Key: A, C

Explanation:

Counting days from March 1 to March 15 (A) involves days between dates.

Calculating days between Jan 5 and Feb 10 (C) involves days between dates.

Class duration (B) and movie length (D) are measured in hours/minutes, not days between dates.

Fill In the Blanks

9. A meeting starts at 11:00 AM and lasts for 2 hours and 45 minutes. The meeting will finish at _____ PM.

Key: 1:45

Explanation: 11:00 AM + 2 hours = 1:00 PM, plus 45 minutes = 1:45 PM.

10. If a workshop ends at 4:30 PM and it lasts for 3 hours, the starting time of the workshop is _____ PM.

Key: 1:30

Explanation: 4:30 PM - 3 hours = 1:30 PM.

Matching Type

11. Match the Time-Related Terms to Their Definitions

Terms	Definitions
1. Starting Time	A. The amount of time an event lasts, expressed in hours and minutes.
2. Finishing Time	B. The time when an event begins.
3. Duration	C. The total time that has passed between two specific times.
4. Time Elapsed	D. The time when an event ends.

Key: 1-B, 2-D, 3-A, 4-C

Answer the Following Questions

12. A painting class ends at 4:30 PM and lasts for 2 hours. What time does the class start?

Key: 2:30 PM

Explanation: 4:30 PM - 2 hours = 2:30 PM.

13. A concert starts at 6:15 PM and lasts for 1 hour and 45 minutes. What time does the concert finish?

Key: 8:00 PM

Explanation: 6:15 PM + 1 hour = 7:15 PM, plus 45 minutes = 8:00 PM.

14. A school day starts at 8:00 AM and lasts for 6 hours. What time does the school day end?

Key: 2:00 PM

Explanation: 8:00 AM + 6 hours = 2:00 PM.

MEASUREMENT OF TEMPERATURE

TEACHING TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. What temperature corresponds to absolute zero in Celsius?
   A) 0°C B) -273.15°C C) 100°C D) -100°C

Key: B

Explanation:

Absolute zero is the lowest possible temperature where molecular motion stops.

On the Kelvin scale, it is 0 K, which equals -273.15°C in Celsius.

2. If a recipe calls for baking at 350°F, what is this temperature in degrees Celsius?
   A) 175°C B) 180°C C) 160°C D) 190°C

Key: A

Explanation: Use formula C = (F - 32) × 5/9 = (350 - 32) × 5/9 = 175°C.

3. Convert 25°C to Kelvin. What is the result?
   A) 298.15 K B) 273.15 K C) 25 K D) 310 K

Key: A

Explanation: K = C + 273.15 = 25 + 273.15 = 298.15 K.

4. If the temperature reads 30°C, what is it in Fahrenheit?
   A) 86°F B) 70°F C) 60°F D) 75°F

Key: A

Explanation: F = (C × 9/5) + 32 = (30 × 9/5) + 32 = 86°F.

5. A digital thermometer shows a body temperature of 38°C. What is this in degrees Fahrenheit?
   A) 100.4°F B) 96.8°F C) 104°F D) 98.6°F

Key: A

Explanation: F = (38 × 9/5) + 32 = 100.4°F.

ADVANCED LEVEL

More than One Answer Type

6. Which of the following units are commonly used to measure temperature?
   A) Degrees Celsius (°C) B) Degrees Fahrenheit (°F)
   C) Meters (m) D) Kelvin (K)

Key: A, B, D

Explanation: Celsius, Fahrenheit, and Kelvin are temperature units. Meters (C) measure length, not temperature.

7. Which statements about thermometers are true?
   A) Liquid-in-glass thermometers contain mercury or colored alcohol.
   B) Digital thermometers provide a manual readout.
   C) Infrared thermometers measure thermal radiation from a distance.
   D) All thermometers measure temperature in Celsius only.

Key: A, C

Explanation: Liquid-in-glass thermometers contain mercury/alcohol (A). Infrared thermometers measure radiation from a distance (C). Digital thermometers give digital readouts, not manual (B false). Thermometers can measure in different scales (D false).

8. Which of the following statements are correct regarding temperature conversions?
   A) 25°C is equivalent to 77°F.
   B) 0°C is the freezing point of water in Celsius.
   C) To convert Celsius to Kelvin, you subtract 273.15.
   D) 100°C is the boiling point of water in Celsius.

Key: A, B, D

Explanation: 25°C = 77°F (A correct). 0°C is water's freezing point (B correct). 100°C is water's boiling point (D correct). To convert Celsius to Kelvin, you add 273.15, not subtract (C false).

Fill In the Blanks

9. When preheating an oven for baking, a recipe may instruct you to set it to _____ °F for optimal cooking.

Key: 350

Explanation:

350°F (= 175°C) is a standard baking temperature used for cakes, cookies, and many baked goods.

10. An infrared thermometer measures the temperature of an object without making contact; it's often used for checking _____ temperatures.

Key: body / surface

Explanation:

Infrared thermometers measure thermal radiation from a distance, making them useful for checking body temperature (medical use) or surface temperature (cooking, industrial use).

Matching Type

11. Match the Temperature Conversion Formulas to Their Examples

Formulas	**Examples**
1. Celsius to Fahrenheit	A. C = K - 273.15
2. Fahrenheit to Celsius	B. K = C + 273.15
3. Celsius to Kelvin	C. F = (C × 9/5) + 32
4. Kelvin to Celsius	D. C = (F - 32) × 5/9

Key: 1-C, 2-D, 3-B, 4-A

Answer the Following Questions

12. A recipe requires the oven to be preheated to 200°C. If you want to convert this temperature to Fahrenheit, what is the equivalent temperature?

Key: 392°F

Explanation: F = (200 × 9/5) + 32 = 392°F.

13. The weather report states that the temperature is 85°F. What is this temperature in degrees Celsius?

Key: = 29.44°C

Explanation: C = (85 - 32) × 5/9 = 29.44°C.

14. A person has a body temperature of 98.6°F. What is this temperature in Kelvin?

Key: = 310.15 K

Explanation: First convert to Celsius: C = (98.6 - 32) × 5/9 = 37°C, then K = 37 + 273.15 = 310.15 K.

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

Multiple Choice Questions

1. What is the freezing point of water in degrees Celsius?
   A) 0°C B) 32°C C) 100°C D) 273.15°C

Key: A

Explanation:

Water freezes at 0°C on the Celsius scale.

32°C is warm, 100°C is boiling point, and 273.15°C is Kelvin equivalent of 0°C.

2. If the temperature is 68°F, what is it in degrees Celsius?
   A) 20°C B) 18°C C) 15°C D) 25°C

Key: A

Explanation: C = (68 - 32) × 5/9 = 20°C.

3. Which of the following is a typical body temperature in degrees Fahrenheit?
   A) 98.6°F B) 37°F C) 100°F D) 95°F

Key: A

Explanation:

98.6°F is the standard normal human body temperature.

37°F is very cold, 100°F is fever-level, and 95°F is below normal.

4. What is the boiling point of water in Kelvin?
   A) 100 K B) 212 K C) 373.15 K D) 0 K

Key: C

Explanation:

Boiling point of water is 100°C.

Kelvin = Celsius + 273.15 ? 100 + 273.15 = 373.15 K.

5. Convert 100°C to Fahrenheit. What is the result?
   A) 212°F B) 200°F C) 100°F D) 150°F

Key: A

Explanation:

Formula: $F = \frac{9}{5}C + 32$

$F = \frac{9}{5}(100) + 32 = 180 + 32 = 212°F.$

ADVANCED LEVEL

More than One Answer Type

6. Identify the correct freezing and boiling points of water in different temperature scales.
   A) Water freezes at 0°C and 32°F.
   B) Water boils at 100°C and 212°F.
   C) Water freezes at 273.15 K.
   D) Water boils at 373 K.

Key: A, B, C, D

Explanation:

A: Correct = 0°C and 32°F are freezing points.

B: Correct = 100°C and 212°F are boiling points.

C: Correct = 273.15 K is freezing point in Kelvin.

D: Correct = 373 K is boiling point in Kelvin (373.15 K rounded to 373 K in some contexts).

7. Which examples of temperature measurement are applicable in daily life?
   A) Checking the weather to decide on clothing.
   B) Setting an oven temperature for baking.
   C) Measuring the temperature of a pool before swimming.
   D) Measuring the length of a room for renovation.

Key: A, B, C

Explanation:

Weather, oven temperature, and pool temperature involve temperature measurement.

Measuring room length (D) is not temperature-related.

8. Which of the following are true about the Kelvin scale?
   A) The Kelvin scale starts at absolute zero (0 K).
   B) Water freezes at 0 K.
   C) Kelvin is primarily used in scientific contexts.
   D) The Kelvin scale does not use negative values.

Key: A, C, D

Explanation:

A: True = 0 K is absolute zero.

C: True = Kelvin is mainly used in science.

D: True = No negative values on Kelvin scale.

B: False = Water freezes at 273.15 K, not 0 K.

Fill In the Blanks

9. Water freezes at _____ degrees Celsius and _____ degrees Fahrenheit.

Key: 0, 32

Explanation:

The freezing point of water is 0°C. To convert to Fahrenheit:

$F = \frac{9}{5} \times 0 + 32 = 32°F.$

10. A digital thermometer reads a body temperature of _____ degrees Fahrenheit, which is considered a normal range.

Key: 98.6

Explanation:

98.6°F is the standard average human body temperature, representing the normal range in Fahrenheit.

Matching Type

11. Match the Temperature Units to Their Characteristics

Units

1. Degrees Celsius (°C)
2. Degrees Fahrenheit (°F)
3. Kelvin (K)

Characteristics:

A. Used primarily in scientific contexts and starts at absolute zero.
B. Commonly used in most countries; water freezes at 0°C and boils at 100°C.
C. Mainly used in the United States; water freezes at 32°F and boils at 212°F.

Key: 1-B, 2-C, 3-A

Answer the Following Questions

12. Water freezes at 0°C. What is this temperature in Fahrenheit?

Key: 32°F

Explanation:

Freezing point of water is 0°C.

Use formula: $F = \frac{9}{5} \times C + 32$

$F = \frac{9}{5} \times 0 + 32 = 32°F.$

13. A scientific experiment requires a temperature of 250 K. What is this

temperature in degrees Celsius?

Key: -23.15°C

Explanation: C = K - 273.15 = 250 - 273.15 = -23.15°C.

14. The temperature on a summer day reaches 30°C. What is this temperature in Fahrenheit?

Key: 86°F

Explanation: F = (30 × 9/5) + 32 = 86°F.