

Temperature

Temperature tells how hot or cold something is. In the U.S., we mostly use Fahrenheit ($^{\circ}\text{F}$): water freezes at 32°F and boils at 212°F .

Reference temperatures ($^{\circ}\text{F}$)	What it feels like
32°F	water freezes (icy outside)
50°F	cool day, need a sweater
70°F	comfortable room temperature
90°F	hot summer day

Key Concepts

- Temperature** measures hot/cold. The unit in the U.S. is *degrees Fahrenheit* ($^{\circ}\text{F}$).
- Water **freezes** at 32°F . Below 32°F is below freezing; above is above freezing.
- A typical comfortable room is about 70°F . Cold winter days are 20°F or below; hot summer days reach 90°F or more.
- Temperature changes** are simple addition or subtraction. “Rose 13 degrees” adds 13; “dropped 13 degrees” subtracts 13.

Worked Examples

① The temperature was 58°F in the morning and 75°F in the afternoon. How much did it rise?

 “How much did it rise” is a difference: $75 - 58 = 17$. So the temperature rose 17°F .


 **Answer:** 17°F

② Is 30°F above or below freezing?

 Water freezes at 32°F . Since $30 < 32$, 30°F is *below* freezing.

 **Answer:** *Below freezing*

③ Which is warmer: 85°F or 60°F ?

 Higher number = warmer. $85 > 60$, so 85°F is warmer.

 **Answer:** 85°F

Practice Problems

Calculate, compare, or pick the right description.

- $72^{\circ}\text{F} - 55^{\circ}\text{F} = ?$ _____
- $90^{\circ}\text{F} - 68^{\circ}\text{F} = ?$ _____
- $40^{\circ}\text{F} + 18^{\circ}\text{F} = ?$ _____
- Above or below freezing: 25°F ? _____
- Warmer: 80°F or 65°F ? _____
- $50^{\circ}\text{F} + 22^{\circ}\text{F} = ?$ _____
- $100^{\circ}\text{F} - 35^{\circ}\text{F} = ?$ _____
- Above or below freezing: 35°F ? _____

9. Cooler: 45°F or 60°F ? _____

11. Coat or shorts at 28°F ? _____

10. $82^{\circ}\text{F} - 59^{\circ}\text{F} = ?$ _____

12. $65^{\circ}\text{F} + 15^{\circ}\text{F} = ?$ _____

Study Tips

- ☞ Memorize three reference points: 32°F = freezing, 70°F = comfy room, 100°F = scorching hot. They make new temperatures easier to picture.
- ☞ Higher number = warmer; lower number = colder. Comparing temperatures is just comparing whole numbers.
- ☞ A *change* in temperature is just the difference between two readings. “Rose Δ degrees” adds; “dropped Δ degrees” subtracts.

Word Problems

1. On Monday the high was 78°F . On Tuesday it was 65°F . How many degrees cooler was Tuesday?

Answer: _____

2. The temperature at 6 a.m. was 48°F . By noon it rose 24°F . What was the noon temperature? Was it above or below room temperature (70°F)?

Answer: _____

Answer Key — with Friendly Explanations**Practice Problems**

1. $72 - 55 = 17$.

 **Answer:** $17^{\circ}F$

2. $90 - 68 = 22$.

 **Answer:** $22^{\circ}F$

3. $40 + 18 = 58$.

 **Answer:** $58^{\circ}F$

4. $25 < 32$, so below freezing.

 **Answer:** *Below freezing*

5. $80 > 65$, so $80^{\circ}F$ is warmer.

 **Answer:** $80^{\circ}F$

6. $50 + 22 = 72$.

 **Answer:** $72^{\circ}F$

7. $100 - 35 = 65$.

 **Answer:** $65^{\circ}F$

8. $35 > 32$, so above freezing (barely).

 **Answer:** *Above freezing*

9. $45 < 60$, so $45^{\circ}F$ is cooler.

 **Answer:** $45^{\circ}F$

10. $82 - 59 = 23$.

 **Answer:** $23^{\circ}F$

11. $28^{\circ}F$ is below freezing — definitely a coat.

 **Answer:** *Coat*

12. $65 + 15 = 80$.

 **Answer:** $80^{\circ}F$ **Word Problems**

1. $78 - 65 = 13$ degrees cooler.

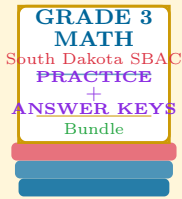
 **Answer:** $13^{\circ}F$ cooler

2. $48 + 24 = 72^{\circ}F$. Above room temperature.

 **Answer:** $72^{\circ}F$, above

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