Graphing Independent and Dependent Variables: Axis Choice and Plotting Practice

Original tasks 1, 2 / complete keys

Task 1

A plant grows over days. Data: (1, 3), (2, 6), (3, 9), (4, 12), where the first value is days and the second is height in centimeters. Label the axes, state a scale, and plot the points.

Answer: Horizontal axis: Days (days). Vertical axis: Height (cm). A scale of 1 day per grid interval horizontally and 3 cm per grid interval vertically works; alternatively, 1 unit per interval with a stated scale of 3 cm per square. Plot (1,3), (2,6), (3,9), (4,12).

Reason: Days are chosen first, so days are independent; height responds, so height is dependent. Plot each pair as (days, height).

Check: Trace each point back to the axes and confirm it matches the table; verify equal spacing and stated scale.

Task 2

A taxi fare depends on distance. Data: (2, 8), (4, 16), (6, 24), (8, 32), where the first value is distance in kilometers and the second is fare in dollars. Label the axes, choose a scale, and plot the points.

Answer: Horizontal axis: Distance (km). Vertical axis: Fare (dollars). Use 2 km per grid interval horizontally and 8 dollars per grid interval vertically, or 1 unit per interval with a stated scale of 2 km and 8 dollars per square. Plot (2,8), (4,16), (6,24), (8,32).

Reason: Distance is selected or controlled; fare responds. Therefore distance is independent and fare is dependent.

Check: Confirm each point's horizontal coordinate equals the distance and vertical coordinate equals the fare; check that all points fit within the labeled range.

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Original tasks 3, 4 / complete keys

Task 3

A candle burns over hours. Data: (1, 18), (2, 16), (3, 14), (4, 12), where the first value is hours and the second is height in centimeters. Label the axes, state a scale, and plot the points.

Answer: Horizontal axis: Time (h). Vertical axis: Height (cm). Use 1 hour per grid interval horizontally and 2 cm per grid interval vertically, or 1 unit per interval with a stated scale of 2 cm per square. Plot (1,18), (2,16), (3,14), (4,12).

Reason: Time is the independent quantity; height depends on time. Plot (time, height).

Check: Reread each point from the graph and compare with the table; ensure the vertical axis covers 12 to 18 cm with equal intervals.

Task 4

A runner's distance depends on time. Data: (5, 10), (10, 20), (15, 30), (20, 40), where the first value is minutes and the second is distance in meters. Label the axes, choose a scale, and plot the points.

Answer: Horizontal axis: Time (min). Vertical axis: Distance (m). Use 5 minutes per grid interval horizontally and 10 meters per grid interval vertically, or 1 unit per interval with a stated scale of 5 minutes and 10 meters per square. Plot (5,10), (10,20), (15,30), (20,40).

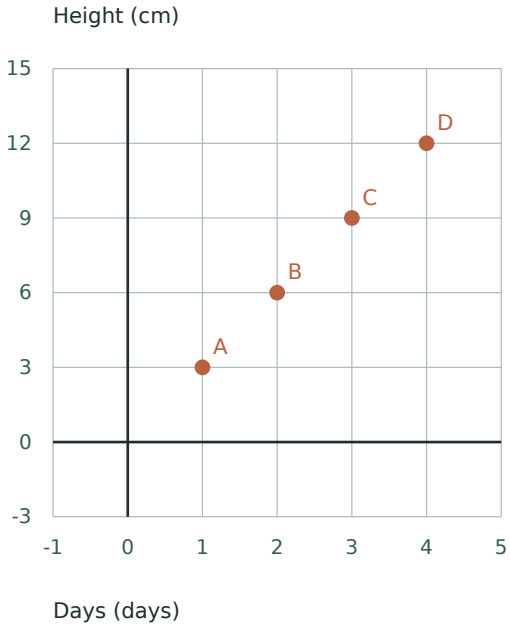
Reason: Time is chosen or measured first; distance responds. Time is independent and distance is dependent.

Check: Verify that each point's coordinates match the table and that the scale covers 5 to 20 minutes and 10 to 40 meters with equal spacing.

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Task 1 / completed coordinate key

A plant grows over days. Data: (1, 3), (2, 6), (3, 9), (4, 12), where the first value is days and the second is height in centimeters. Label the axes, state a scale, and plot the points.



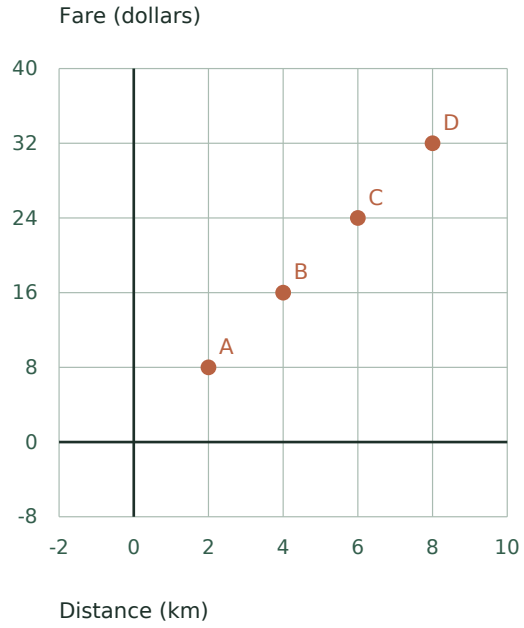
Each horizontal interval = 1; each vertical interval = 3. The axes show a display window, not a newly imposed domain.

A = (1, 3); B = (2, 6); C = (3, 9); D = (4, 12)

Graphing Independent and Dependent Variables: Axis Choice and Plotting Practice

Task 2 / completed coordinate key

A taxi fare depends on distance. Data: (2, 8), (4, 16), (6, 24), (8, 32), where the first value is distance in kilometers and the second is fare in dollars. Label the axes, choose a scale, and plot the points.



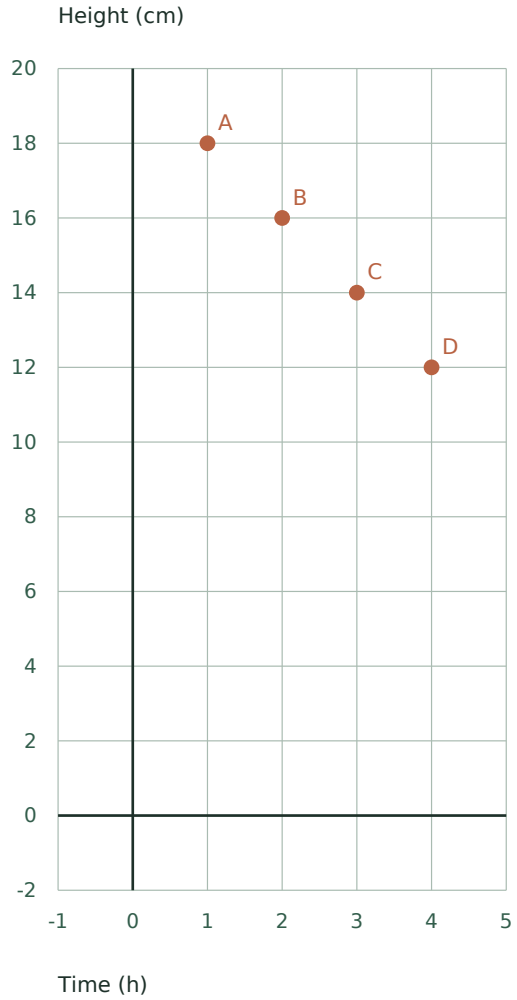
Each horizontal interval = 2; each vertical interval = 8. The axes show a display window, not a newly imposed domain.

A = (2, 8); B = (4, 16); C = (6, 24); D = (8, 32)

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Task 3 / completed coordinate key

A candle burns over hours. Data: (1, 18), (2, 16), (3, 14), (4, 12), where the first value is hours and the second is height in centimeters. Label the axes, state a scale, and plot the points.



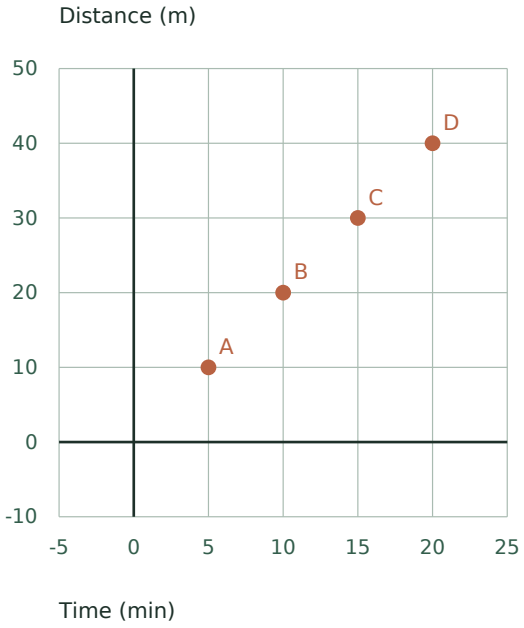
Each horizontal interval = 1; each vertical interval = 2. The axes show a display window, not a newly imposed domain.

A = (1, 18); B = (2, 16); C = (3, 14); D = (4, 12)

Graphing Independent and Dependent Variables: Axis Choice and Plotting Practice

Task 4 / completed coordinate key

A runner's distance depends on time. Data: (5, 10), (10, 20), (15, 30), (20, 40), where the first value is minutes and the second is distance in meters. Label the axes, choose a scale, and plot the points.



Each horizontal interval = 5; each vertical interval = 10. The axes show a display window, not a newly imposed domain.

A = (5, 10); B = (10, 20); C = (15, 30); D = (20, 40)

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Original rubric / reflection

- [ ] Independent variable correctly placed on the horizontal axis.
- [ ] Dependent variable correctly placed on the vertical axis.
- [ ] Both axis labels include variable names and units.
- [ ] Scale is stated and grid intervals are equal.
- [ ] All ordered pairs are plotted as (independent, dependent).
- [ ] Points are readable and match the data table.
- [ ] Valid alternative scales or label placements are accepted if consistent and clearly stated.

Reflection: What did you check, what did you change, and what will you try next?