Charging the battery cart

Linear models | cost comparison

Instructional alignment A-CED.A; F-IF.B

Targets selected reasoning within the named code. Review the full standard and any assessment boundary before making a mastery or PLD claim.

1. A(h)=18+4h and B(h)=7h. Equal at h=6, cost $42.

2. A is cheaper at whole hours h>=7 because 18<3h.

3. Both plans cost $42 at six hours, so neither is strictly cheaper.

One local criterion per numbered answer. Accept equivalent valid reasoning. Award the criterion only when the response supplies its requested evidence.

Interpret an error

Using the lower hourly rate without checking the fixed charge. Check the actual response and ask a diagnostic question before assigning this interpretation.

Independent transfer

Now charge in half-hour increments. State the first cheaper allowed duration and explain why the continuous threshold stays six hours.

Related public evidence

ALG1_2026_08_35 | public question

Official mapping for that example

ALG1_2026_08_33 | public question

Official mapping for that example

Original AI-assisted teaching stimulus; all numerical observations and named classroom settings are constructed

Raised garden arch

Quadratic structure | equation and interval

Instructional alignment A-APR.B; F-IF.C

Targets selected reasoning within the named code. Review the full standard and any assessment boundary before making a mastery or PLD claim.

1. h=x(10-x), so contacts are 0 and 10; vertex (5,25).

2. -x^2+10x>=16 gives (x-2)(x-8)<=0, so 2<=x<=8.

3. The modeled arch occupies 0<=x<=10.

One local criterion per numbered answer. Accept equivalent valid reasoning. Award the criterion only when the response supplies its requested evidence.

Interpret an error

Reporting two boundary points without including the positions between them. Check the actual response and ask a diagnostic question before assigning this interpretation.

Independent transfer

Sketch a second arch h(x)=-2x^2+20x. Which horizontal boundaries change for a 16-foot opening?

Related public evidence

ALG1_2026_08_15 | public question

Official mapping for that example

ALG1_2026_08_14 | public question

Official mapping for that example

Original AI-assisted teaching stimulus; all numerical observations and named classroom settings are constructed

Two receipt checks

Systems and constraints | paired receipts

Instructional alignment A-CED.A; A-REI.C

Targets selected reasoning within the named code. Review the full standard and any assessment boundary before making a mastery or PLD claim.

1. 2(8)+3(3)=25 works, but 4(8)+3=35 also works. The proposal satisfies both constraints.

2. Subtract twice A from B to get -5d=-15, so d=3 and s=8. Both equalities check.

3. One equation can have many pairs. Both independent conditions select a common pair.

One local criterion per numbered answer. Accept equivalent valid reasoning. Award the criterion only when the response supplies its requested evidence.

Interpret an error

Assuming a proposed pair must be wrong because the question asks for a check. Check the actual response and ask a diagnostic question before assigning this interpretation.

Independent transfer

Replace receipt B with a budget of at most $35. Describe what changes in the solution set.

Related public evidence

ALG1_2026_08_35 | public question

Official mapping for that example

ALG1_2026_08_34 | public question

Official mapping for that example

Original AI-assisted teaching stimulus; all numerical observations and named classroom settings are constructed

Same center, different repair times

Statistics | two distributions

Instructional alignment S-ID.A

Targets selected reasoning within the named code. Review the full standard and any assessment boundary before making a mastery or PLD claim.

1. A sum=50 and B sum=50. Both means and medians are 10 minutes.

2. A range=4; B range=18. Five observations give limited information about future jobs.

3. A has the smaller observed spread, supporting greater predictability in this sample.

One local criterion per numbered answer. Accept equivalent valid reasoning. Award the criterion only when the response supplies its requested evidence.

Interpret an error

Concluding equal averages imply equal distributions. Check the actual response and ask a diagnostic question before assigning this interpretation.

Independent transfer

Create a sixth observation that changes one mean without changing its median. Explain the effect.

Related public evidence

ALG1_2026_08_18 | public question

Official mapping for that example

ALG1_2026_06_18 | public question

Official mapping for that example

Original AI-assisted teaching stimulus; all numerical observations and named classroom settings are constructed

Labels on an exponential model

Growth and functions | model comparison

Instructional alignment F-LE.A; F-LE.B

Targets selected reasoning within the named code. Review the full standard and any assessment boundary before making a mastery or PLD claim.

1. 80 mg is the initial amount. Each cycle retains 75%, removing 25%.

2. At 1 both are 60; at 2 C=45 and D=40. Equal first changes do not establish equal models.

3. D becomes negative for t>4, which is impossible for the amount of material.

One local criterion per numbered answer. Accept equivalent valid reasoning. Award the criterion only when the response supplies its requested evidence.

Interpret an error

Treating a constant percent decrease as a constant subtraction. Check the actual response and ask a diagnostic question before assigning this interpretation.

Independent transfer

Replace 0.75 with 1.25 and state which interpretation changes.

Related public evidence

ALG1_2026_08_5 | public question

Official mapping for that example

ALG1_2026_08_1 | public question

Official mapping for that example

Original AI-assisted teaching stimulus; all numerical observations and named classroom settings are constructed

Measuring foam panels

Quantities and precision | unit conversion

Instructional alignment N-Q.A; A-CED.A

Targets selected reasoning within the named code. Review the full standard and any assessment boundary before making a mastery or PLD claim.

1. 1.2 m by 0.5 m gives 0.6 square meter.

2. 20(0.6)(6)=$72.

3. A centimeter-to-meter factor applies to both lengths. 6000 square cm equals 0.6 square meter.

One local criterion per numbered answer. Accept equivalent valid reasoning. Award the criterion only when the response supplies its requested evidence.

Interpret an error

Applying one linear conversion to an area. Check the actual response and ask a diagnostic question before assigning this interpretation.

Independent transfer

Add a 10% waste allowance to required area and revise the cost.

Related public evidence

ALG1_2026_08_35 | public question

Official mapping for that example

ALG1_2026_08_26 | public question

Official mapping for that example

Original AI-assisted teaching stimulus; all numerical observations and named classroom settings are constructed