

Phone Plan Showdown — Student Workbook

Name: _____ Date: _____

What we are learning

I can model each phone plan as a linear function, compare the plans using tables, graphs and equations, find break-even points, and recommend a plan for a specific customer with evidence.

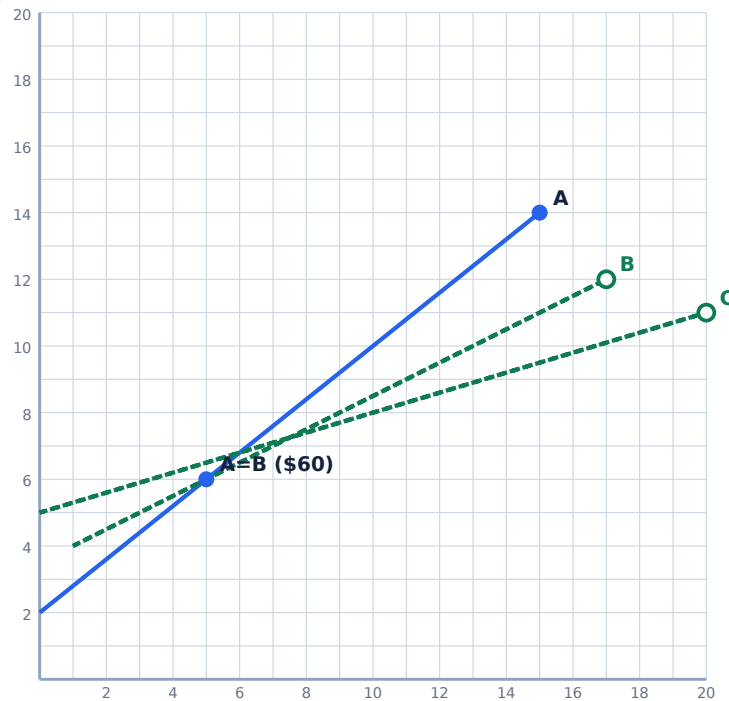
Think about this

Three companies all claim to be the cheapest phone plan — and all three are telling the truth. How?

Your task

Three carriers compete for the same customers. Plan A: \$20 monthly fee plus \$8 per GB. Plan B: \$35 plus \$5 per GB. Plan C: \$50 plus \$3 per GB. Your consumer-advocate team will model all three as equations, tables and graphs, find every break-even point, and then match real customers to their best plan — with evidence a skeptical customer would accept.

The three plans on one grid. Data in GB across; cost UP IN TENS of dollars (2 means \$20). A and B cross at (5, 6) — that is \$60 at 5 GB.



Cost comparison table — complete every cell in dollars.

Data used	Plan A: $8x + 20$	Plan B: $5x + 35$	Plan C: $3x + 50$
0 GB	\$20	\$35	\$50
2 GB			
5 GB			
8 GB			

10 GB			
15 GB			

Worked together — I do

Find Plan A's cost at 6 GB, from the equation.

Plan A is $y = 8x + 20$. Substitute $x = 6$: $y = 8(6) + 20 = 48 + 20 = 68$. Six gigabytes on Plan A costs \$68 — \$48 of usage on top of the \$20 fee.

Now with support — we do

Complete the 8 GB row of the cost table.

Plan A: $8(8) + 20 = \underline{\hspace{2cm}}$. Plan B: $5(8) + 35 = \underline{\hspace{2cm}}$. Plan C: $3(8) + 50 = \underline{\hspace{2cm}}$. Cheapest at 8 GB: Plan .

On your own — you do

Find the exact A=B break-even by setting the equations equal, and state what the point means.

Find the B=C break-even. Why was the graph not enough for this one?

The Family uses 42 GB. Compute all three plans, recommend one, and give the ANNUAL savings over the runner-up.

Design Plan D to beat Plan A for heavy users but lose to it for light users. Give the equation and its break-even against A.

Challenge

A fourth carrier wants a plan that is NEVER the cheapest but also never the most expensive. Design one and defend it.

For plans $y = mx + b$ and $y = nx + c$ with $m > n$, find the break-even in symbols. What happens when $m = n$?

Exit ticket

Plan D costs \$15 per month plus \$7 per GB. Write its equation and find the cost of 9 GB.

In one sentence: what does Plan D's slope mean, in dollars?

At 9 GB, is Plan D cheaper or pricier than Plan B ($\$35 + \$5/\text{GB}$)? Show the evidence.

Homework

Find a real fee-plus-rate price (streaming, transit card, utility). Write its equation and compute a light month and a heavy month.

A parent asks: 'Why not just take the \$20 plan? It's obviously cheapest.' Write the two-sentence answer, with one number in it.
