The only way up the mountain

One seller faces the whole market: it sets MR = MC, then charges what demand allows.

1 Monopoly

the market type

- **One seller** · no close substitute · protected by a **barrier to entry**
- Barriers → natural monopoly (huge fixed cost: a 2nd cable line never pays back) · legal (license, patent, sole right from the government) · network effects (more users ⇒ more useful)
- Faces the **whole market demand** ⇒ downward slope · more rides only by a lower price · $30 ⇒ 500 rides · $20 ⇒ 1,000
- Not a price taker (too small to set its price) · but not "no reaction": at a high price some riders walk or drive

2 Marginal revenue

MR below price

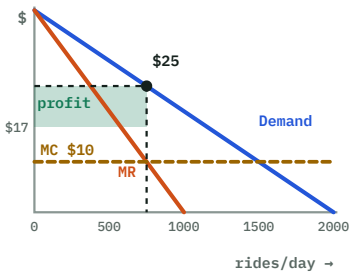
- **MR** = extra revenue from 1 more ride · a lower price applies to every rider
- 700 → 750 rides: price $26 → $25 · gain 50 × $25 = **$1,250** · lose 700 × $1 = **$700** ⇒ net $550 ⇒ MR = **$11** a ride
- Demand `P = 40 − 0.02Q` · `MR = 40 − 0.04Q` ⇒ same $40 start, **twice the slope**, MR = 0 at half of demand's quantity

rides	500	1,000	1,500
price	$30	$20	$10
MR	$20	$0	−$20

3 Best quantity, price, profit

MR = MC

- **Rule** → MC = marginal cost (cost of 1 more ride) · sell every ride whose MR > MC · stop at `MR = MC` · then go **up to demand** for the price
- MC = $10: `40 − 0.04Q = 10` ⇒ **750 rides** · P = 40 − 0.02 × 750 = **$25** (not $10, not MR)
- `Profit = (P − ATC) × Q` · ATC (average total cost, per ride) = 5,250 ÷ Q + 10 = $17 at 750 ⇒ (25 − 17) × 750 = **$6,000** · profit lasts while barriers keep rivals out



4 Shocks

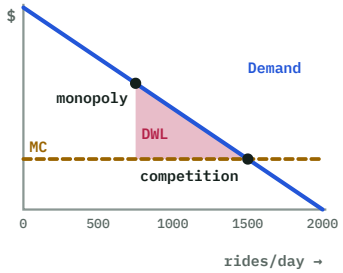
practice cases

- **MC** ↑ $10 → $16 ⇒ MR = MC at **600** rides · price **$28** ⇒ fewer rides, higher price
- **Demand** ↑ `P = 50 − 0.02Q` ⇒ MR = MC at **1,000** rides · price **$30** ⇒ both up
- **Fixed fee** +$1,000 a day ⇒ profit −$1,000 in every row (700: $4,950 · 750: **$5,000** · 800: $4,950) ⇒ **best quantity unchanged**
- Fixed cost moves profit, never MR or MC, so never the best quantity

5 Against competition

deadweight loss

- Competition: `P = MC` = $10 · **1,500** rides · monopoly: $25 · 750 rides ⇒ higher price, fewer rides
- **DWL** (deadweight loss) = surplus (gain from trade) lost, kept by nobody = ½ × 750 × ($25 − $10) = **$5,625**
- **Price cap $20** (transfer case) ⇒ sells up to demand at $20 = **1,000** rides ⇒ DWL ½ × 500 × $10 = **$2,500** · profit (20 − 15.25) × 1,000 = $4,750



6 Regulation

+ price discrimination

- **P = MC** ($10) ⇒ no DWL but loss = fixed cost $5,250 ⇒ needs a subsidy (public money) · **P = ATC** (fair return) ⇒ break even, between the two prices
- **Price discrimination** → same ride, different price by willingness to pay · needs a barrier (no resale)
- Tourists $28 × 600 + locals $18 × 500 = **$25,800** · two tickets 500 × $30 + 500 × $20 = **$25,000** · both beat one price $25 ⇒ 750 × $25 = $18,750 · two tickets: profit $9,750 vs $6,000
- **Perfect** discrimination → each pays their maximum ⇒ all consumer surplus to the firm · 1,500 rides ⇒ **no DWL**
- Price comes from demand, not from MR · MR only tells where to stop