The AhaBulb Party Game

STUFF EVERY ELECTRICIAN SHOULD KNOW

How to play (30 seconds)

1. The reader reads a card and its three answers out loud.
2. Everyone says "One, two, three, Goldilocks!" and holds up 1, 2, or 3 fingers.
3. The reader flips the card and reads the answer and the Why.
4. Everyone who was right takes a point.
5. The reader reads the joke with a straight face. Anyone laughs or groans? The reader takes a point. Nobody got it right? The reader takes a point.
6. Pass the deck left. Most points when the points run out wins.

What you need

These cards and the point tokens on the last two pages. No tokens? Use coins, buttons, pebbles, or marshmallows. 3 to 10 players, ages 8 and up.

Expert rule: Bet It

Before the reader flips the card, you may put one of your points on your answer. Right: take your normal point plus one extra. Wrong: your bet goes back to the pile. That's it.

Printing

Print single-sided, on cardstock if you have it. Cut on the dashed lines. Each card is a 3.5 x 5 inch index card. The answer half is upside down on purpose, so the table can't peek.

Cards 1 to 50 of 99. More cards and the free daily online game at sesk.info. Built 2026-10-14.

TRADES & SHOP

In Ohm's law, current through a resistor is directly proportional to what?

- **A** The resistance of the material
- **B** The voltage applied across it
- **C** The frequency of the supply

FLIP FOR THE ANSWER

B The voltage applied across it

WHY Double the voltage across the same resistor and the current doubles. Resistance sits on the other side of the equation, so more resistance means less current.

STRAIGHT FACE
What was the electrician/detective's name? Sherlock Ohms.

SESK.INFO #4435

TRADES & SHOP

One ohm of resistance is defined as one volt for every what?

- **A** Ampere
- **B** Watt
- **C** Coulomb

FLIP FOR THE ANSWER

A Ampere

WHY Resistance is how much voltage it takes to push a given current. If 1 volt pushes 1 amp through a conductor, that conductor has 1 ohm.

STRAIGHT FACE
What's an electrician's favorite breakfast? Ohmelettes.

SESK.INFO #4434

TRADES & SHOP

In a parallel circuit, which quantity is the same across every branch?

- **A** Voltage
- **B** Current
- **C** Power

FLIP FOR THE ANSWER

A Voltage

WHY Each branch connects straight across the source, so each sees the same voltage. Currents differ depending on each branch's resistance.

STRAIGHT FACE
What did the lightbulb say to the generator? I really get a charge out of you.

SESK.INFO #4437

TRADES & SHOP

In a series circuit, which quantity is the same through every resistor?

- **A** Voltage
- **B** Resistance
- **C** Current

FLIP FOR THE ANSWER

C Current

WHY There is only one path, so every charge that goes through the first resistor must go through the next. The voltage splits up, but the current does not.

STRAIGHT FACE
Why did the fairy lights break up? They could not handle the series commitment.

SESK.INFO #4436

TRADES & SHOP

Two 10 ohm resistors are wired in parallel. What is the total resistance?

- **A** 10 ohms
- **B** 5 ohms
- **C** 20 ohms

FLIP FOR THE ANSWER

B 5 ohms

WHY Adding a second path gives current more room to flow, so total resistance drops. Two equal resistors in parallel give half the value of one.

STRAIGHT FACE
I asked an electrician to fix an electrical problem at my house. He refused.

SESK.INFO #4438

TRADES & SHOP

Kirchhoff's junction rule says the current entering a junction does what?

- **A** Exceeds the current leaving it
- **B** Splits evenly among all branches
- **C** Equals the current leaving it

FLIP FOR THE ANSWER

C Equals the current leaving it

WHY Charge cannot pile up or vanish at a connection point. Whatever flows in must flow out, though not always evenly between branches.

STRAIGHT FACE
What did the socket say to the plug? Our connection is electrifying.

SESK.INFO #4439

TRADES & SHOP

Counting the source too, the voltage changes around any closed loop in a circuit add up to what?

- **A** Zero
- **B** The supply voltage
- **C** The total resistance

FLIP FOR THE ANSWER

A Zero

WHY Every volt a source supplies is used up by the loads. This is the loop rule, and it is how you find voltage drops.

STRAIGHT FACE
A sweater I bought kept picking up static electricity, so I returned it. They gave me another one free of charge.

SESK.INFO #4440

TRADES & SHOP

To measure the voltage across a device, how is a voltmeter connected?

- **A** In series with the device
- **B** In parallel with the device
- **C** Around one wire with a clamp

FLIP FOR THE ANSWER

B In parallel with the device

WHY Voltage is measured across two points, so the meter bridges them. Putting a voltmeter in series would block the circuit.

STRAIGHT FACE
What do electricians talk about? Current events.

SESK.INFO #4441

TRADES & SHOP

Compared with the circuit it measures, a good voltmeter has what kind of resistance?

- **A** Very high
- **B** Very low
- **C** About equal

FLIP FOR THE ANSWER

A Very high

WHY High resistance means the meter draws almost no current and does not change the voltage it is reading. A low-resistance voltmeter would act like a short.

STRAIGHT FACE
Why was the electrician's son grounded? His parents said he had no potential.

SESK.INFO #4443

TRADES & SHOP

To measure current with an in-line ammeter, how is it connected to the circuit?

- **A** In parallel across the device
- **B** Across the power source terminals
- **C** In series with the device

FLIP FOR THE ANSWER

C In series with the device

WHY All the current you want to measure has to flow through the meter. That means opening the circuit and putting the meter in the gap.

STRAIGHT FACE
Why did the electrician join Facebook? So he could post his current status.

SESK.INFO #4442

TRADES & SHOP

Why do utilities send electricity over long distances at very high voltage?

- **A** High voltage is safer to touch
- **B** Transformers only work at high voltage
- **C** Power losses in the lines are much smaller

FLIP FOR THE ANSWER

C Power losses in the lines are much smaller

WHY For the same power, higher voltage means less current. Line loss is current squared times resistance, so a small drop in current saves a lot of energy.

STRAIGHT FACE
With great power comes great current squared times resistance.

SESK.INFO #4445

TRADES & SHOP

A 120 volt AC outlet reaches a peak of about what voltage?

- **A** 120 volts
- **B** 170 volts
- **C** 240 volts

FLIP FOR THE ANSWER

B 170 volts

WHY The 120 V figure is an rms (effective) value, equal to the DC voltage that would heat a resistor the same. The waveform actually swings higher, to about 1.41 times 120.

STRAIGHT FACE
Which is an electrician's favorite band? AC/DC.

SESK.INFO #4444

TRADES & SHOP

Electric power in watts equals current in amps multiplied by what?

- **A** Voltage in volts
- **B** Resistance in ohms
- **C** Time in seconds

FLIP FOR THE ANSWER

A Voltage in volts

WHY Watts measure how fast energy is used. A circuit pushing more current at the same voltage, or the same current at higher voltage, uses more power.

STRAIGHT FACE
What does one electrician say to another when they run into each other out in public? Watt's up!!

SESK.INFO #4446

TRADES & SHOP

In an AC circuit with only a resistor, how do voltage and current line up?

- **A** Current leads voltage by a quarter cycle
- **B** They rise and fall together, in phase
- **C** Current lags voltage by a quarter cycle

FLIP FOR THE ANSWER

B They rise and fall together, in phase

WHY A resistor does not store energy, so current follows voltage instantly. Capacitors and inductors are what shift the timing.

STRAIGHT FACE
What's an electrician's favorite ice cream flavor? Shock-o-late.

SESK.INFO #4447

TRADES & SHOP

In an AC circuit, the current through a capacitor does what compared with its voltage?

- **A** Lags it by a quarter cycle
- **B** Stays exactly in step
- **C** Leads it by a quarter cycle

FLIP FOR THE ANSWER

C Leads it by a quarter cycle

WHY A capacitor draws the most current when its voltage is changing fastest, which is before the voltage peak. Inductors do the opposite and make current lag.

STRAIGHT FACE
He married her because he just could not resistor. Ohm sweet Ohm.

SESK.INFO #4448

TRADES & SHOP

Power factor compares the real power in watts with what?

- **A** Volts times amps, the apparent power
- **B** The motor's nameplate horsepower
- **C** The breaker's amp rating

FLIP FOR THE ANSWER

A Volts times amps, the apparent power

WHY When voltage and current are out of step, you still draw amps but get fewer watts of useful power. A lower power factor means more current for the same real work.

STRAIGHT FACE
Where do electricians go when their job is done? They go h-ohm.

SESK.INFO #4449

TRADES & SHOP

In a three-phase system, how far apart in time are the three voltages, in degrees?

- **A** 90 degrees
- **B** 180 degrees
- **C** 120 degrees

FLIP FOR THE ANSWER

C 120 degrees

WHY Each of the three phases peaks one third of a cycle after the previous one. Because they overlap, the combined power delivery is smooth.

STRAIGHT FACE
What's the electrician's favorite city? Washington, DC.

SESK.INFO #4451

TRADES & SHOP

AC voltages and currents are usually quoted as which kind of value?

- **A** Peak
- **B** Rms (root mean square)
- **C** Peak to peak

FLIP FOR THE ANSWER

B Rms (root mean square)

WHY The rms value is a kind of average that gives the same heating as the equal DC value. That is why a 120 V outlet is not labeled with its higher peak.

STRAIGHT FACE
What's an electrician's favorite fruit? Currants!

SESK.INFO #4450

TRADES & SHOP

In a balanced three-phase wye system, how much current flows in the neutral?

- **A** Three times one line current
- **B** Essentially none
- **C** Double a single phase current

FLIP FOR THE ANSWER

B Essentially none

WHY The three phase currents are equal and 120 degrees apart, so they cancel at the neutral point. Unbalanced loads leave a leftover current on the neutral.

STRAIGHT FACE
How does an electrician know a dead battery in a pile of good ones? It's lost its spark.

SESK.INFO #4453

TRADES & SHOP

In a wye system, line-to-line voltage is how many times line-to-neutral voltage?

- **A** About 1.73 (square root of 3)
- **B** Exactly 2
- **C** Exactly 1.41

FLIP FOR THE ANSWER

A About 1.73 (square root of 3)

WHY The phases are 120 degrees apart, so two phase voltages subtract to a bigger number than either one. That is why 120 V to neutral becomes 208 V between phases.

STRAIGHT FACE
What's an electrician's favorite store? The electrical outlet!

SESK.INFO #4452

WORKPLACE SAFETY (OSHA)

OSHA's lockout/tagout standard exists to prevent what?

- **A** Overloaded breakers
- **B** Counterfeit electrical parts
- **C** Unexpected energization or release of stored energy

FLIP FOR THE ANSWER

C Unexpected energization or release of stored energy

WHY Someone servicing a machine must not be hurt when it suddenly starts or releases stored energy. Locks and tags keep the power source isolated.

STRAIGHT FACE
After hours fighting a stubborn light switch, the electrician gave up and just wrote OFF at the top and ON at the bottom.

SESK.INFO #4454

WORKPLACE SAFETY (OSHA)

Under OSHA rules, who normally removes a lockout or tagout device?

- **A** The employee who applied it
- **B** Any supervisor on site
- **C** Whoever needs the machine next

FLIP FOR THE ANSWER

A The employee who applied it

WHY The person who put the lock on is the one who knows the work is done and everyone is clear. An employer can override only under specific, documented procedures.

STRAIGHT FACE
Why is it always better to hire three electricians instead of just one? Because many hands make light work.

SESK.INFO #4455

WORKPLACE SAFETY (OSHA)

At a minimum, how often must a lockout/tagout procedure be inspected?

- **A** At least monthly
- **B** At least annually
- **C** Every five years

FLIP FOR THE ANSWER

B At least annually

WHY OSHA wants regular checks that the procedure is followed and still works. An inspector reviews it with the employees using it.

STRAIGHT FACE
What's an electrician's favorite snack? Microchips.

SESK.INFO #4456

WORKPLACE SAFETY (OSHA)

Why is a lock considered stronger than a tag in lockout/tagout?

- **A** Tags cost more than locks
- **B** Locks can be installed live
- **C** A tag is only a warning, not a physical restraint

FLIP FOR THE ANSWER

C A tag is only a warning, not a physical restraint

WHY A tag can be ignored or removed by accident, but a lock stops a switch from being turned on. OSHA generally requires locks where a device can be locked.

STRAIGHT FACE
Two electricians argued for five days. They just could not find any common ground.

SESK.INFO #4457

TRADES & SHOP

OSHA says the path to ground from circuits and equipment must be permanent, continuous and what?

- **A** Effective
- **B** Visible
- **C** Insulated

FLIP FOR THE ANSWER

A Effective

WHY A fault current needs a reliable low-resistance path so the breaker trips fast. A path that is broken or only sometimes connected is not protecting anyone.

STRAIGHT FACE
My parents were electricians. I was already grounded.

SESK.INFO #4458

TRADES & SHOP

On a construction site, what may OSHA accept instead of GFCIs to protect workers?

- **A** A larger circuit breaker
- **B** An assured equipment grounding conductor program
- **C** A surge protector strip

FLIP FOR THE ANSWER

B An assured equipment grounding conductor program

WHY OSHA lets construction employers use either GFCIs or an assured equipment grounding conductor program. That is a written plan for regularly inspecting and testing cords, receptacles and equipment.

STRAIGHT FACE
Why did the electrician punch a hole in the wall? He needed an outlet.

SESK.INFO #4459

TRADES & SHOP

OSHA says live parts must be what before an employee works on or near them?

- **A** Taped over
- **B** Labeled with voltage
- **C** Deenergized

FLIP FOR THE ANSWER

C Deenergized

WHY De-energizing is the first line of defense. The exception is when it creates added hazards or is infeasible, and then energized work rules apply.

STRAIGHT FACE
If Usain Bolt was an electrician, his name would be Usain Volt.

SESK.INFO #4460

TRADES & SHOP

Portable ladders used near energized parts must have what kind of side rails?

- **A** Nonconductive
- **B** Aluminum
- **C** Galvanized steel

FLIP FOR THE ANSWER

A Nonconductive

WHY A metal ladder can become part of the circuit if it touches a live part or overhead line. Fiberglass rails keep the ladder from carrying current to you.

STRAIGHT FACE
Where do electricians get their supplies? The Ohm Depot.

SESK.INFO #4461

TRADES & SHOP

Rubber insulating gloves must be electrically tested before first issue and how often afterward?

- **A** Every 12 months
- **B** Every 6 months
- **C** Every 3 years

FLIP FOR THE ANSWER

B Every 6 months

WHY Tiny cracks or pinholes can't be seen but can let current through. Lab testing proves the rubber still holds its rated voltage.

STRAIGHT FACE
What do CrossFitters and electricians have in common? Lots of circuit training.

SESK.INFO #4462

TRADES & SHOP

Along with a visual check, what must insulating gloves get before each day's use?

- **A** A water soak
- **B** A heat test
- **C** An air test

FLIP FOR THE ANSWER

C An air test

WHY You trap air in the glove and squeeze or roll the cuff to look for leaks. A hole too small to see can be found this way.

STRAIGHT FACE
I have failed my electrician's exam three times, so I am trying meditation. Ohmmmm.

SESK.INFO #4463

TRADES & SHOP

Leather protector gloves go where relative to rubber insulating gloves?

- **A** Over them
- **B** Under them
- **C** Only on one hand

FLIP FOR THE ANSWER

A Over them

WHY The leather guards the thin rubber from cuts and punctures. A damaged rubber glove stops being insulation.

STRAIGHT FACE
Did you hear about the electrician who wore two jackets to paint the house? The instructions said to put on two coats.

SESK.INFO #4464

TRADES & SHOP

An arc flash can reach temperatures of up to about how many degrees Fahrenheit?

- **A** 3,500
- **B** 35,000
- **C** 350

FLIP FOR THE ANSWER

B 35,000

WHY An arc is current jumping through ionized air after a flashover or short circuit. The heat is enough to vaporize metal, which is why arc-rated clothing and distance matter.

STRAIGHT FACE
I tried to start a band called The Short Circuits, but we kept blowing our first set.

SESK.INFO #4465

TRADES & SHOP

The arc flash boundary is the distance at which incident energy equals what?

- **A** 12 calories per square centimeter
- **B** 40 calories per square centimeter
- **C** 1.2 calories per square centimeter

FLIP FOR THE ANSWER

C 1.2 calories per square centimeter

WHY 1.2 cal/cm2 is roughly the level that can cause a second-degree burn on bare skin. Inside that boundary you need arc-rated PPE.

STRAIGHT FACE
Do you know why the light bulb failed his math quiz? He just wasn't that bright.

SESK.INFO #4466

TRADES & SHOP

Voltage-rated gloves are required inside the restricted approach boundary of exposed conductors at what voltage or higher?

- **A** 50 volts
- **B** 12 volts
- **C** 120 volts

FLIP FOR THE ANSWER

A 50 volts

WHY NFPA 70E treats 50 volts as the level where shock protection is needed. Above that, voltage-rated gloves and tools are used when your hands cross the restricted approach boundary.

STRAIGHT FACE
What do you call a freelance electrician? A soldierer of fortune.

SESK.INFO #4467

TRADES & SHOP

You see an open disconnect switch. Does that prove the circuit beyond it is dead?

- **A** Yes, if the handle is down
- **B** No, you still have to test for voltage
- **C** Yes, if there is a tag on it

FLIP FOR THE ANSWER

B No, you still have to test for voltage

WHY The handle position doesn't tell you what is inside, and someone else could close the switch. A mechanical failure could also leave parts live.

STRAIGHT FACE
The breaker kept tripping, so I took it on holiday, now it is much more relaxed.

SESK.INFO #4468

TRADES & SHOP

GFCIs address shock hazards. What do AFCIs address?

- **A** Voltage drop
- **B** Overload only
- **C** Fire hazards

FLIP FOR THE ANSWER

C Fire hazards

WHY A GFCI senses current leaking away from the circuit and cuts power fast. An AFCI recognizes dangerous arcing in damaged or loose wiring before it ignites something.

STRAIGHT FACE
What is an energy provider's favorite dance? The Electric Slide.

SESK.INFO #4469

TRADES & SHOP

At roughly what current level can muscles lock up so you can't let go?

- **A** Above about 1 milliamp
- **B** Above about 10 milliamps
- **C** Above about 5 amps

FLIP FOR THE ANSWER

B Above about 10 milliamps

WHY It's current through the body that causes harm, not voltage alone. Currents above 10 mA can make you unable to release a live conductor, extending the shock.

STRAIGHT FACE
Why did the electrician lose a debate? He used conductive reasoning.

TRADES & SHOP

At a minimum, how often should you test a GFCI?

- **A** At least once a month
- **B** Once a year
- **C** Only after a trip

FLIP FOR THE ANSWER

A At least once a month

WHY Pressing the test button should cut power, and reset should restore it. A GFCI that no longer trips can't protect you.

STRAIGHT FACE
Why did the fuse feel calm? It had blown off some steam.

TRADES & SHOP

Fluke says to check a voltage detector on what before and after each use?

- **A** A battery tester
- **B** A known live source
- **C** The metal enclosure

FLIP FOR THE ANSWER

B A known live source

WHY A detector with dead batteries or a fault can tell you nothing is live when something is. Proving it works right before and after protects you from false negatives.

STRAIGHT FACE
Why did the optimistic electrician lose his job? He kept on turning negatives into positives.

TRADES & SHOP

When measuring current with a clamp meter, how many conductors should be inside the jaws?

- **A** One
- **B** Two, hot and neutral together
- **C** All conductors in the cable

FLIP FOR THE ANSWER

A One

WHY The clamp reads the magnetic field around the wire. If the hot and neutral are both inside, their fields cancel and the reading is near zero.

STRAIGHT FACE
How does a sparky become a superhero? Just amps up.

TRADES & SHOP

When measuring AC voltage with a digital multimeter, the black lead goes in which jack?

- **A** COM
- **B** A
- **C** mA

FLIP FOR THE ANSWER

A COM

WHY COM is the common reference for all measurements. The red lead goes in the V input, never the A input, when you measure voltage.

STRAIGHT FACE
The cable tie could not commit, it had too many loose ends.

SESK.INFO #4476

TRADES & SHOP

Before measuring resistance with a multimeter, what must you do to the circuit?

- **A** Leave it energized
- **B** Set it to full load
- **C** Turn the power off

FLIP FOR THE ANSWER

C Turn the power off

WHY The meter supplies its own tiny test current. Live voltage can give false readings and may damage the meter or hurt you.

STRAIGHT FACE
I bought a dimmer, turns out it was not bright.

SESK.INFO #4475

TRADES & SHOP

Fluke lists feeders and branch circuits fed from distribution panels in which meter category?

- **A** CAT II
- **B** CAT IV
- **C** CAT III

FLIP FOR THE ANSWER

C CAT III

WHY Higher category means the meter is built for places with larger available fault energy. CAT II is plug-in loads, CAT III is distribution panels and feeders, CAT IV is the service entrance.

STRAIGHT FACE
What kind of car does an electrician drive? A Volts-wagon.

SESK.INFO #4478

TRADES & SHOP

What happens if you measure voltage with the leads plugged into the A or mA inputs?

- **A** The reading is simply half
- **B** You create a short in the measurement circuit
- **C** Nothing, the meter autoranges

FLIP FOR THE ANSWER

B You create a short in the measurement circuit

WHY Current inputs have almost no resistance so current can pass through the meter. Across a voltage source that makes a near short, which can blow the meter's fuse or worse.

STRAIGHT FACE
My extension lead just ran away, it needed more outlets.

SESK.INFO #4477

TRADES & SHOP

Your meter's test probe has cracked insulation. What should you do?

- **A** Stop using it until it is replaced
- **B** Wrap it in tape and continue
- **C** Use it only on low voltages

FLIP FOR THE ANSWER

A Stop using it until it is replaced

WHY Cracked insulation can expose you to the voltage you are measuring. Fluke says to look over the meter, probes and accessories for damage before every use.

STRAIGHT FACE
A superconductor walks into a bar. The bartender says, 'Get out, we don't serve your kind here.' It leaves without any resistance.

SESK.INFO #4479

TRADES & SHOP

Under OSHA 1910.333, who may work on electric parts that have not been deenergized?

- **A** Any employee wearing rubber gloves
- **B** Only qualified persons
- **C** Any employee with a buddy

FLIP FOR THE ANSWER

B Only qualified persons

WHY A qualified person is trained to tell exposed live parts from other parts, find their nominal voltage and apply the clearance distances. Everyone else keeps away.

STRAIGHT FACE
Keep calm and ohm on.

SESK.INFO #4480

TRADES & SHOP

A GFCI protects people by tripping when current leaks at about what level?

- **A** About 6 amps
- **B** About 60 amps
- **C** About 6 milliamps

FLIP FOR THE ANSWER

C About 6 milliamps

WHY The GFCI compares outgoing and returning current. If even a few milliamps go missing, perhaps through a person, it cuts power in a fraction of a second.

STRAIGHT FACE
Why was the electrician so excited to go shopping with his wife? They were going to the outlet mall.

SESK.INFO #4481

TRADES & SHOP

In 2003, CPSC engineers estimated AFCIs could address about what share of home wiring fires?

- **A** Half
- **B** One tenth
- **C** Nearly all

FLIP FOR THE ANSWER

A Half

WHY Damaged cords and loose connections can arc without ever overloading a breaker. An AFCI detects that arcing pattern and shuts off the circuit.

STRAIGHT FACE
What are some worms that eat up electric wires?
Electro-maggots.

SESK.INFO #4482

TRADES & SHOP

Under the 2023 NEC, which dwelling unit kitchen receptacles need GFCI protection?

- **A** Only receptacles serving the countertop
- **B** All 125V through 250V kitchen receptacles
- **C** Only receptacles within 6 feet of the sink

FLIP FOR THE ANSWER

B All 125V through 250V kitchen receptacles

WHY The 2023 NEC dropped the old countertop-only wording in 210.8. Now every 125V to 250V receptacle in a dwelling kitchen needs GFCI protection.

STRAIGHT FACE
I didn't realize how difficult it was being an electrician until I tried it myself. I was shocked.

TRADES & SHOP

OSHA's 1910.304 requires GFCI protection for receptacles in bathrooms and where else?

- **A** In hallways
- **B** On rooftops
- **C** In conference rooms

FLIP FOR THE ANSWER

B On rooftops

WHY Wet or exposed locations raise the shock risk. OSHA requires GFCI protection for personnel on these receptacles.

STRAIGHT FACE
'Harry, you're a unit of electrical power.' 'I'm a watt?'

1
AhaBulb POINT

1
AhaBulb POINT