Solutions

2.1

- Potency – B is 10× less potent, equally efficacious ✓.

2.2

- Lowers it – the partial agonist competes and caps the mixture near its own ceiling ✓.

2.3

- $TI = TD_{50}/ED_{50}$ (illustrative $100/10 = 10$) ✓.

3.1

- A: potent, full efficacy ✓.
- B: 10× less potent (EC_{50} 20 mg), same ceiling ✓.
- C: potent but partial – E_{max} 60 % ✓.
- C + full agonist at saturation: ceiling pulled toward 60 % (displacement) ✓.
- Potency only sets dose size; if both reach target, either serves ✓.

3.2

- Competitive: right shift, parallel, surmountable ✓.
- Non-competitive: ceiling lowered, unsurmountable ✓.
- Overcome: the competitive case – more agonist outcompetes at the binding site ✓.
- The non-competitive case removes the rope: no tug-of-war is possible ✓.