Part D. How to tell proportionality from equations:

If A = B * constant Then A and B are *directly proportional*.	If A = constant / B or constant = A * B Than A and B are *inversely proportional*.

There always has to be at least one thing *constant* in order to make a proportionality relationship.

Important physics formulas

$\Sigma F = ma$	$p = mv$
$V = IR$	$F_g = mg$

Symbol	Quantity		Symbol	Quantity
ΣF	Net Force		V	Voltage
m	Mass		I	Current
a	Acceleration		R	Resistance
p	Momentum		F_g	Weight
v	Velocity		g	Free-fall acceleration, determined by the planet you are on

9. Fill out the following table describing the relationship between various variables. Note that one variable must be constant for the other two to be proportional.

Variable 1	Variable 2	Constant Variable(s)	Relationship
Net force	Acceleration	Mass	
Mass	Acceleration	Net force	
Velocity	Momentum	Mass	
Mass	Momentum	Velocity	
Mass	Weight	Planet you are on	
Voltage	Current	Resistance	
Resistance	Current	Voltage	

10. Write Ohm's Law (V=IR) as two statements about proportionality:

Answers:

1. If A is doubled, B is doubled; if B is doubled, A is doubled.
2. 120
3. 0.005
4. 33
5. 12
6. 0.0008
7. 4×10^{-10}
8. 6×10^{-5}

9.

Variable 1	Variable 2	Constant Variable(s)	Relationship
Net force	Acceleration	Mass	Direct
Mass	Acceleration	Net force	Inverse
Velocity	Momentum	Mass	Direct
Mass	Momentum	Velocity	Direct
Mass	Weight	Planet you are on	Direct
Voltage	Current	Resistance	Direct
Resistance	Current	Voltage	Inverse

1.
When resistance is constant, voltage and current are directly proportional.
When voltage is constant, resistance and current are inversely proportional.

(These two sentences, together, are mathematically identical to the formula V= IR.)