

Velocity

Velocity	How fast and in what direction an object is going.
Formula (average velocity)	change in position/ time

Practice test things to remember

$$t = d/v$$

when force isn't

Unit 3 vocab

Drag Force force exerted on an object in opposition as object moves through fluid (including air)

As velocity increases, drag force increases

Terminal Velocity When drag force = force of gravity

Interaction pair two forces in opposite direction have = magnitude

Tension Force exerted by a string or rope

Normal force Force surface exerts to keep objects from passing through

Resultant Sum of adding vectors

Definitions

Inertia tendency of an object to resist change

Equilibrium when net force is zero

Force

Definition A push or pull exerted on an object

Equation $F=ma$

One unit kgm/s^2

Net Force vector sum of all forces on an object

Fappearant $= ma+Fg$

Acceleration

Acceleration The rate at which velocity changes

Formula for acceleration Change in velocity/ time

Formula for change in velocity V_2-V_1

Speeding Up When velocity and acceleration are in same direction

Slowing down When velocity and acceleration are in opposite directions

Accelerating at a constant speed A car can be accelerating at a constant speed around a corner

Unit 1 Vocab

Physics A branch of science involving the physical world: energy, matter and how they relate

Hypothesis An educated guess

Model Representation of a natural phenomena

Scientific Law A rule of nature

Scientific Theory A well supported and test explanation of a natural phenomea

Precision The smallest division marked on an instrument

Uncertainty One half the smallest division marked on an instrument

Diagrams of Motion

Motion Diagram Shows subject at equal time intervals along path of motion

Particle Diagram Subject is represented by particles at equal time intervals (simplified)



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Page 1 of 3.

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Types of Motion

Linear	Straight Line
Circular	Circle
Projectile	arch

Sig Fig Calculations

Multiplication/- Division	Answer has same number of sig figs as least number in problem
Addition/Subtraction	Answer is as precise as least precise number in the problem

Sig Figs

Definition	The valid digits in a number
Sig figs	All nonzeros
Sig figs	All sandwiched zeros
Sig figs	All following zeros after a decimal

Measurements

Vectors	Numbers with magnitude and direction
Vector quantities	Velocity, acceleration, force, momentum, displacement
Scalar	Numbers without direction
Scalar quantities	speed, distance, temperature, mass

Graphing Motion

Position Time Graph	Shows how position of an object varies with time.
Slope of Position Time	Shows velocity
Velocity Time graph	Shows how velocity varies with time
Area under curve	Shows distance

Speed

Speed	How fast an object is going
Average speed	d/t
Instantaneous speed	the speed at a specific instant in time
-Speedometer	speed during 1 tire revolution
-Radar gun	speed while a car travels 1 inch
Scalar	Only has number value

Displacement

Displacement	Difference in position
Formula	change in $x = x_2 - x_1$

Graphing Relationships

Linear	Straight line, $y = mx + b$
Quadratic	Parabola, one variable depends on square of another, $y = ax^2 + bx + c$ backwards C
Inverse	Hyperbola, $y = a/x$, one variable depends on inverse of another, forwards C
Radical	$y = a$ radical x upside down u that doesn't connect

Percent error

Formula	$\frac{\text{experimental} - \text{actual}}{\text{actual}} \times 100$
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Force

System	object the force is exerted on
External world	everything around the object that exerts force on the object
Contact force	Exerts a force on system by touching the object
Field forces	exerts a force on the system without touching the object
Free body diagram	physical model that represents the forces acting on a system
Resultant force	Single force with same effect as 2 individual forces added together

Newton's Laws

1st	object at rest will stay at rest and in motion will stay in motion unless acted on by a net force
2nd	Acceleration of an object is sum of forces acting on it divided by the mass of the object
3rd	Forces come in pairs



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Scientific Notation

Moving decimal left Positive exponent

Moving decimal right Negative exponent

Uncertainty The exponent of 10 minus number of following zeros in the problem

Solving vectors

Adding methods Tail to tip or parallelogram

If right triangle pythagoreom theorem

If vectors make right angle, angle of resultant is inverse tangent B/A

Friction

Kinetic friction Acts on moving objects

Static friction Acts on stationary objects



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