Physics

Assignment List

Unit 1: Introduction and Kinematics

Lesson	Read Before Coming	# of Problems
01-01 Introduction and Units	1.1-1.4	16
01-02 Displacement and Vectors	2.1-2.2	9
01-03 Velocity and Graphs	2.3, 2.8	11
01-04 Acceleration and Graphs	2.4, 2.8	11
01-05 Equations for 1-Dimensional Motion with Constant Acceleration	2.5-2.6	12
01-06 Falling Objects	2.7	12
01-07 Two Dimensional Vectors	3.1-3.3	13
01-08 Projectile Motion	3.4	15
01-Review		15
01-Test		21

Unit 2: Forces and Uniform Circular Motion

Lesson	Read Before Coming	# of Problems
02-01 Newton's Laws	4.1-4.4	15
02-02 Weight and Gravity	4.5-4.6, 6.5	17
02-03 Friction	5.1	14
02-04 Tension, Hooke's Law, Drag, Equilibrium	4.5, 4.7, 5.2	14
02-05 Nonequilibrium and Fundamental Forces	4.8	13
02-06 Angular Velocity and Centripetal Acceleration	6.1-6.2	17
02-07 Centripetal Force and Banked Curves	6.3	16
02-08 Satellites	6.6	10
02-Review		21
02-Test		21

Unit 3: Work, Energy, and Momentum

Lesson	Read Before Coming	# of Problems
03-01 Work and the Work-Energy Theorem	7.1-7.2	17
03-02 Potential Energy and Conservative Forces	7.3-7.4	15
03-03 Nonconservative Forces and Conservation of Energy	7.5-7.6	10
03-04 Power	7.7	14
03-05 Energy in Humans and the World	7.8-7.9	12
03-06 Impulse and Momentum	8.1-8.2	15
03-07 Conservation of Momentum	8.3	12
03-08 Elastic and Inelastic Collisions	8.4-8.5	13
03-Review		14
03-Test		21

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Unit 4: Statics, Torque, and Rotational Motion

Lesson	Read Before Coming	# of Problems
04-01 Equilibrium	9.1-9.2	10
04-02 Stability and Applications	9.3-9.4	11
04-03 Simple Machines	9.5-9.6	14
04-04 Kinematics of Rotational Motion	10.1-10.2	10
04-05 Dynamics of Rotational Motion	10.3-10.4	15
04-06 Angular Momentum	10.5-10.7	11
04-Review		16
04-Test		21

Unit 5: Fluids

Lesson	Read Before Coming	# of Problems
05-01 Fluids and Density	11.1-11.2	13
05-02 Pressure and Depth	11.3-11.4	13
05-03 Pascal's Principle and Measuring Pressure	11.5-11.6	14
05-04 Archimedes' Principle	11.7	12
05-05 Flow Rate and Bernoulli's Equation	12.1-12.2	17
05-06 The Most General Applications of Bernoulli's Equation	12.3	9
05-07 Viscosity, Poiseuille's Law, and Turbulence	12.4-12.5	13
05-Review		13
05-Test		21

Unit 6: Temperature, Heat, and Thermodynamics

Lesson	Read Before Coming	# of Problems
06-01 Temperture and Thermal Expansion	13.1-13.2	15
06-02 Ideal Gas Law and Kinetic Theory	13.3-13.4	15
06-03 Phase Changes and Humidity	13.5-13.6	13
06-04 Heat and Temperature Change	14.1-14.2	13
06-05 Phase Change and Latent Heat	14.3	14
06-06 Conduction	14.4-14.5	11
06-07 Convection and Radiation	14.6-14.7	15
06-08 The 1st Law of Thermodynamics and Simple Processes	15.1-15.2	14
06-09 The 2nd Law of Thermodynamics and Heat Engines	15.3-15.5	14
06-10 Entropy and the 2nd Law of Thermodynamics	15.6-15.7	15
06-Review		13
06-Test		21

Unit 7: Waves and Sound

Lesson	Read Before Coming	# of Problems
07-01 Waves	16.9, 16.2	15
07-02 Hooke's Law and Simple Harmonic Motion	16.1, 16.3	15
07-03 Sound, Speed, Frequency, and Wavelength	17.1-17.2	14
07-04 Sound Intensity and Sound Level	17.3	14
07-05 Doppler Effect and Sonic Booms	17.4	14
07-06 Superposition and Interference	16.10	13

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07-07 Sound Interference and Resonance	17.5	15
07-08 Hearing and Ultrasound	17.6-17.7	15
07-Review		25
07-Test		21

Unit 8: Electric Forces and Electric Fields

Lesson	Read Before Coming	# of Problems
08-01 Static Electric Charge and Conductors	18.1-18.2	13
08-02 Coulomb's Law	18.3	12
08-03 Electric Field and Electric Field Lines	18.4-18.5	13
08-04 Conductors and Electric Fields in Equilibrium and Applications	18.6-18.8	13
08-05 Electric Potential Energy: Potential Difference	19.1	11
08-06 Electric Potential in a Uniform Electric Field	19.2	11
08-07 Electric Potential Due to a Point Charge and Equipotential Lines	19.3-19.4	15
08-08 Capacitors and Energy Stored in Capacitors	19.5, 19.7	16
08-Review		19
08-Test		21

Unit 9: Electric Currents

Lesson	Read Before Coming	# of Problems
09-01 Current, Resistance, and Ohm's Law	20.1-20.2	17
09-02 Resistance and Resistivity	20.3	12
09-03 Electric Power and AC/DC	20.4-20.5	15
09-04 Electricity and the Human Body	20.6-20.7	14
09-05 Resistors in Series and Parallel	21.1	14
09-06 Electromotive Force: Terminal Voltage	21.2	12
09-07 Kirchhoff's Rules	21.3	8
09-08 DC Voltmeters and Ammeters	21.4	9
09-09 DC Circuits Containing Resistors and Capacitors	21.6	10
09-Review		16
09-Test		21

Unit 10: Magnetism

Lesson	Read Before Coming	# of Problems
10-01 Magnets	22.1-22.2	0
10-02 Magnetic Fields and Force on a Moving Charge	22.3-22.5	19
10-03 Magnetic Force on Current-Carrying Wire	22.7-22.8	12
10-04 Magnetic Fields Produced by Currents	22.9-22.11	14
10-05 Faraday's Law of Induction and Lenz's Law	23.1-23.2	13
10-06 Motional emf and Magnetic Damping	23.3-23.4	8
10-07 Electric Generators and Back Emf	23.5-23.6	10
10-08 Transformers and Electrical Safety	23.7-23.8	8
10-09 Inductance	23.9	15
10-Review		16
10-Test		21

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Unit 11: Electromagnetic Waves and Optics

Lesson	Read Before Coming	# of Problems
11-01 Maxwell's Equations and Production of EM Waves	24.1-24.2	7
11-02 The EM Spectrum and Energy	24.3-24.4	15
11-03 The Laws of Reflection and Refraction	25.1-25.3	13
11-04 Total Internal Reflection	25.4-25.5	11
11-05 Image Formation by Lenses	25.6	12
11-06 Image Formation by Mirrors	25.7	12
11-07 Vision	26.1-26.3	15
11-08 Interference, Huygens's Principle, Young's Double Slit Experiment	27.1-27.3	13
11-09 Multiple Slit Diffraction	27.4	10
11-10 Single Slit Diffraction, Limits of Resolution, Thin Film Interference	27.5-27.7	17
11-11 Polarization	27.8	9
11-Review		17
11-Test		21

Unit 12: Special Relativity

Lesson	Read Before Coming	# of Problems
12-01 Einstein's Postulates and Time Dilation	28.1-28.2	11
12-02 Length Contraction	28.3	8
12-03 Relativistic Addition of Velocities	28.4	11
12-04 Relativistic Momentum	28.5	5
12-05 Relativistic Energy	28.6	11
12-Review		13
12-Test		16

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