

SAT Physics Practice - Paper 43

16. An object is traveling in a uniform circular motion with a centripetal force of F . If the radius of the circular path is doubled, how is the centripetal force affected? Assume the object maintains uniform circular motion.
- (A) $\frac{1}{4}F$
(B) $\frac{1}{2}F$
(C) F
(D) $2F$
(E) $4F$
17. Assuming frictional forces are negligible, the maximum range of an object in projectile motion is dependent on which of the following?
- I. Initial velocity
II. Initial launching angle
III. Acceleration due to gravity
- (A) II only
(B) III only
(C) I and II only
(D) II and III only
(E) I, II, and III

Questions 18–20

A copier machine uses a converging lens system to create copies of an original image. The converging lens may be moved, thereby altering the effective object length. The focal length of the converging lens of this machine is 10 cm.

18. If the machine produces copies that are the same size as the, original, what is the distance between the original and the lens?
- (A) 5 cm
(B) 10 cm
(C) 15 cm
(D) 20 cm
(E) 40 cm

19. To produce enlargements that are twice the size of the original, what would be the required distance between the original and the lens?

- (A) 5 cm
- (B) 10 cm
- (C) 15 cm
- (D) 20 cm
- (E) 25 cm

20. An image of the original is not produced. What object distance could account for this occurrence?

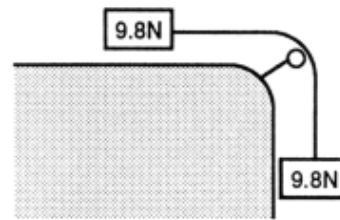
- (A) 0.1 cm
- (B) 0.5 cm
- (C) 1 cm
- (D) 5 cm
- (E) 10 cm

21. Two liters of a gas are stored within a cylinder. The temperature of the gas is kept constant. The cylinder is then compressed so that the pressure exerted on the gas is increased from 4 atmospheres to 8 atmospheres. What volume will the gas occupy at the higher pressure?

- (A) 0.5 liter
- (B) 1 liter
- (C) 2 liters
- (D) 4 liters
- (E) 16 liters

22. Which of the following is not a vector quantity?

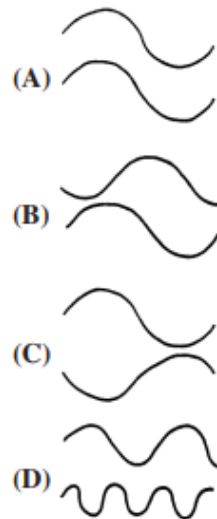
- (A) Displacement
- (B) Acceleration
- (C) Electric field
- (D) Density
- (E) Momentum



23. Two wooden blocks are connected by a massless string, as illustrated above. Assuming frictionless conditions exist, what is the magnitude of the acceleration of the blocks?

- (A) 0.5 m/s^2
- (B) 0.9 m/s^2
- (C) 1.0 m/s^2
- (D) 4.9 m/s^2
- (E) 9.8 m/s^2

24. The graphs below demonstrate pairs of traveling waves. If the waves in each pair are superimposed, which pair will show the greatest constructive interference?



16. B 17. E 18. D 19. C 20. E 21. B 22. D 23. D 24. A