

Name: _____

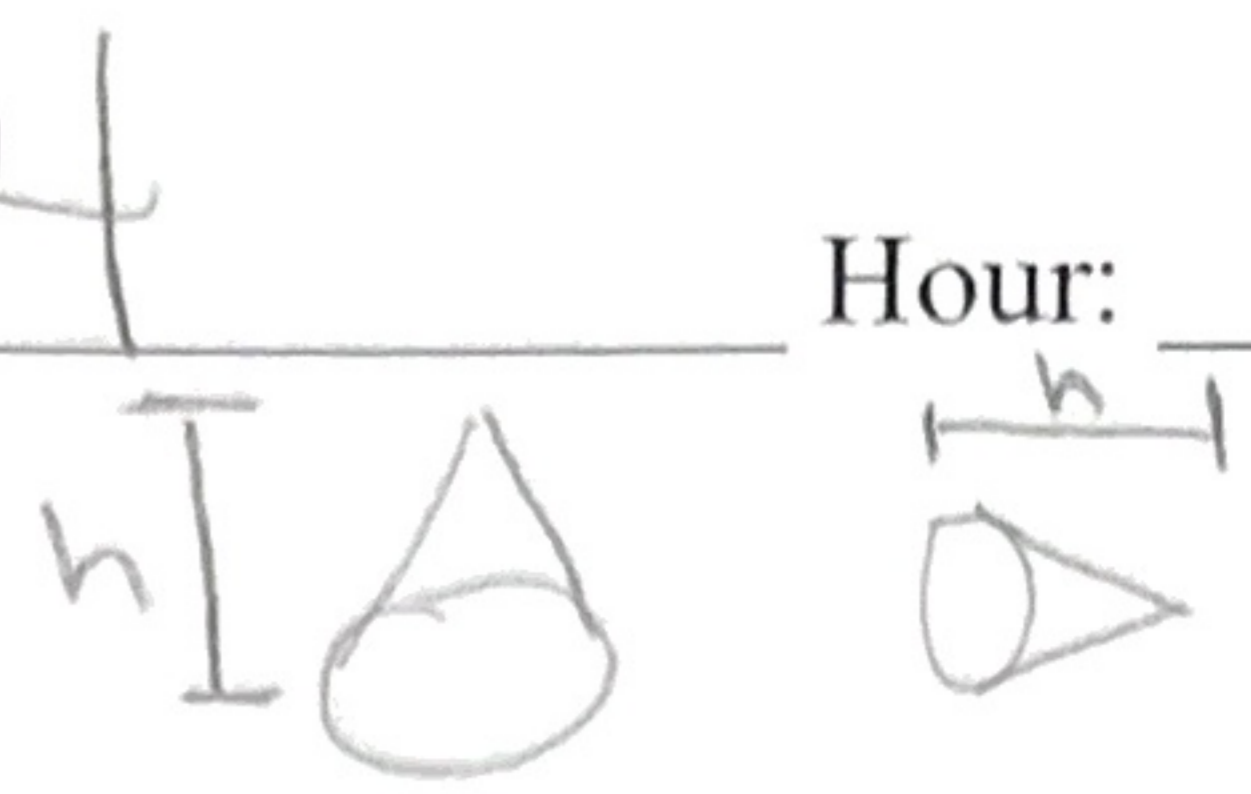
Date: Sept 4

Hour: _____

Alg 1

Unit 1B Day 11: Substituting in Equations

Focus Question: *Can I substitute and simplify correctly?*

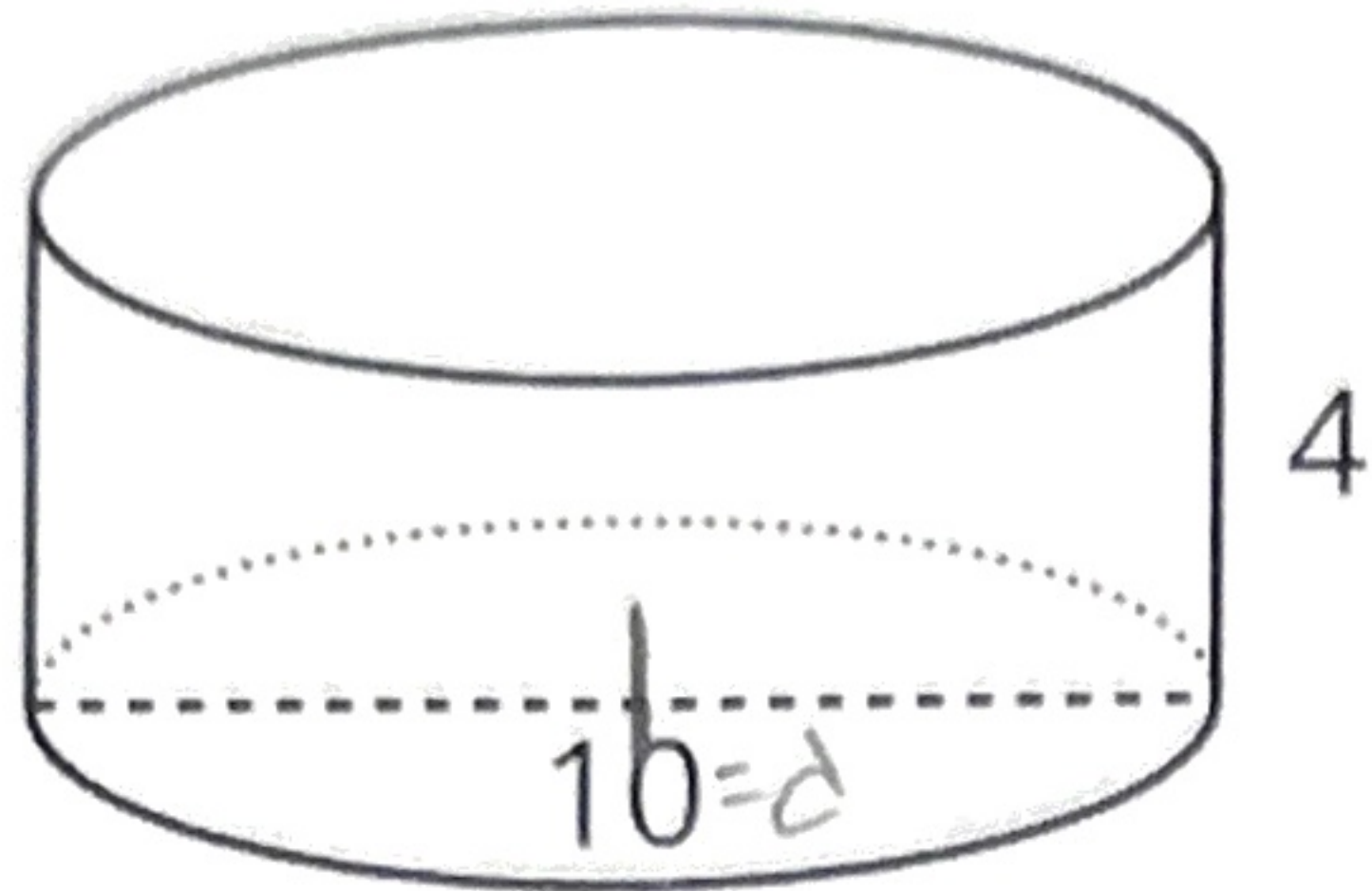
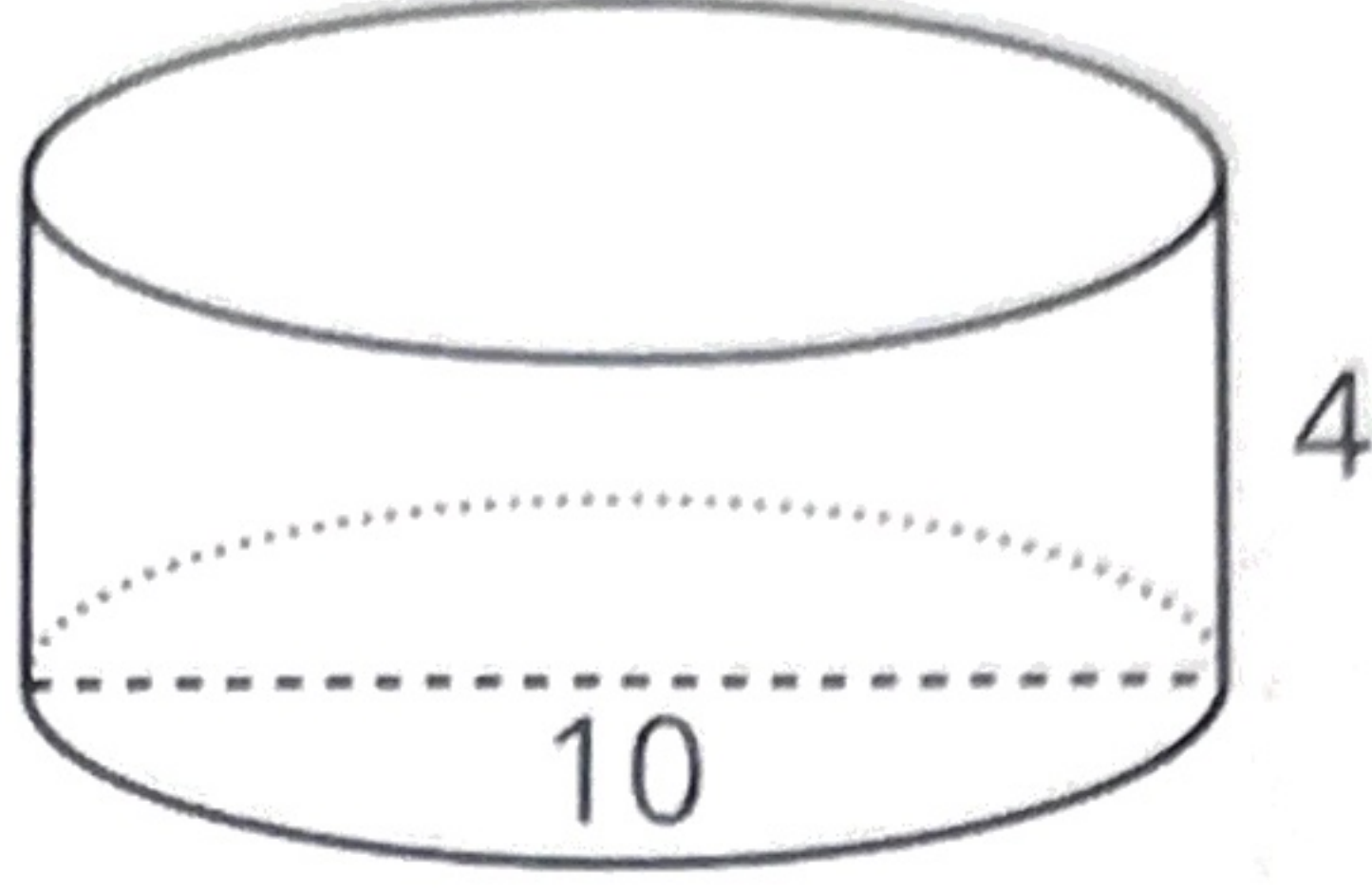
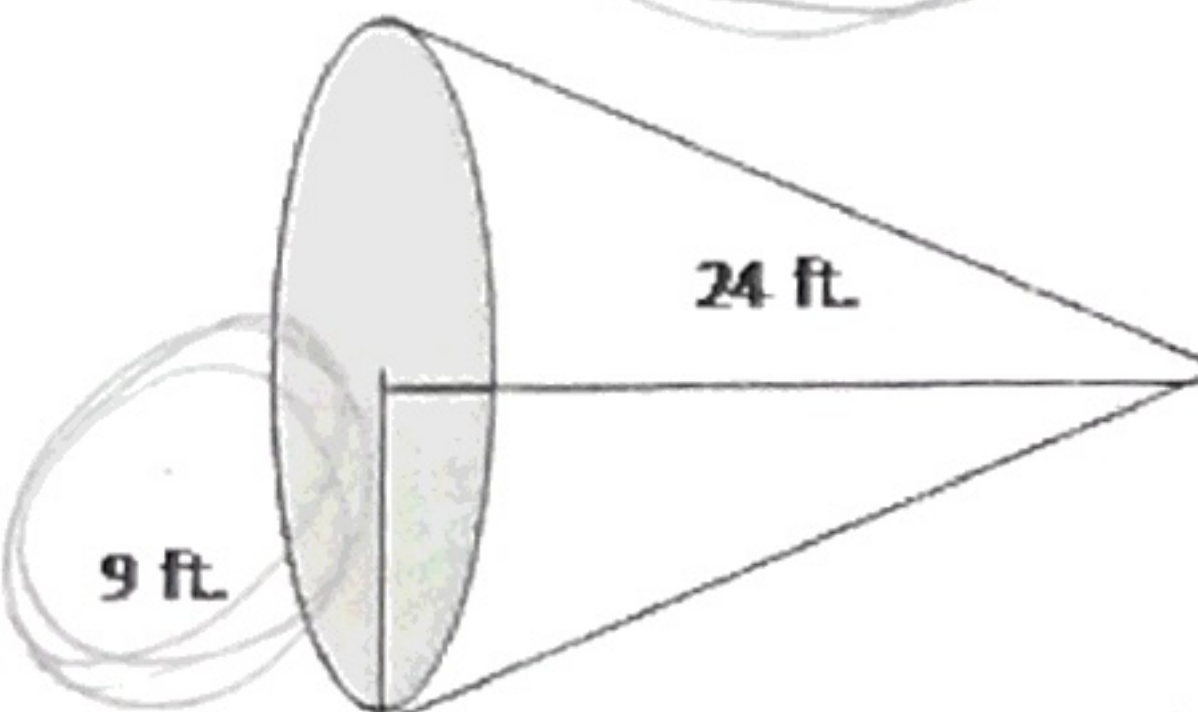
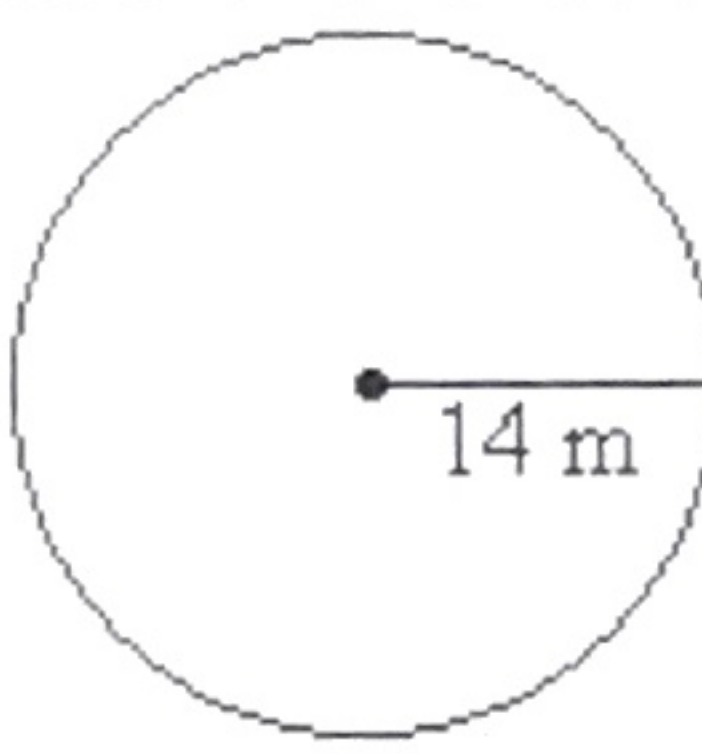


Kinetic Energy	Surface area of a cylinder	Volume of a cylinder	Volume of a cone	Area of a circle
k is kinetic energy in joules m is mass in kilograms v is velocity in meters per second	S is surface area in square units $\pi \approx 3.14$ r is radius in units h is height in units	V is volume in cubic units $\pi \approx 3.14$ r is radius in units h is height in units	V is volume in cubic units $\pi \approx 3.14$ r is radius in units h is height in units	A is area in square units $\pi \approx 3.14$ r is radius in units
$k = \frac{1}{2}mv^2$	$S = 2\pi r^2 + 2\pi rh$	$V = \pi r^2 h$	$V = \frac{\pi r^2 h}{3}$	$A = \pi r^2$



$1000g = 1kg$

Problem	① Find the <u>volume</u> of a <u>cylinder</u> with a height of 10 cm and radius of 4 cm.	② Find the <u>kinetic energy</u> of an object that weighs 20 grams with a velocity of 50 meters per second.
Work	$V \approx (3.14)(4)^2(10)$ $V \approx (3.14)(16)(10)$ $V \approx 502.4$ <p style="text-align: center;">Cubic cm</p> <p style="text-align: center;">cm^3 \downarrow 3 cm</p>	$K = \frac{1}{2}(0.02)(50)^2$ $K = (0.01)(2500)$ $K = 25 \text{ joules}$
Problem	③ Find the <u>area</u> of a <u>circle</u> with a diameter of 24 inches. $d=24$ $r=12$	④ Find the <u>volume</u> of a <u>cone</u> with a radius of 18 mm and a height of 125 mm.
Work	$A \approx (3.14)(12)^2$ $A \approx (3.14)(144)$ $A \approx 452.16$ <p style="text-align: center;">Square in.</p>	$V \approx (3.14)(18)^2(125)$ $V \approx (3.14)(324)(125)$ $V \approx 127170$ <p style="text-align: center;">$V \approx 42390$ Cubic mm</p>

<p>Problem</p>	<p>Find the <u>surface area</u> of the cylinder.</p> 	<p>Find the volume of the cylinder.</p> 
<p>Work</p>	$S = 2\pi r^2 + 2\pi r h$ $S \approx 2(3.14)(5)^2 + 2(3.14)(5)(4)$ $S \approx 6.28(25) + 6.28(20)$ $S \approx 157 + 125.6$ $S \approx 282.6 \text{ square units}$	$V = \pi r^2 h$ $V \approx (3.14)(5)^2(4)$ $V \approx (3.14)(25)(4)$ $V \approx 314 \text{ cubic units}$
<p>Problem</p>	<p>Find the <u>volume</u>.</p> 	<p>Find the area.</p> 
<p>Work</p>	$V \approx \frac{(3.14)(9)^2(24)}{3}$ $V \approx \frac{(3.14)(81)(24)}{3}$ $V \approx 6104.16 \quad V \approx 234.72 \text{ cubic ft.}$	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Problem</p>	<p>Find the kinetic energy of an object going 10 meters per second with a mass of 24 grams.</p>	<p>Find the surface area of a cylinder with a radius of 12 inches and a height of 26 inches.</p>
<p>Work</p>	<hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/>