

# APPRENTICESHIP AND WORKPLACE MATHEMATICS 10

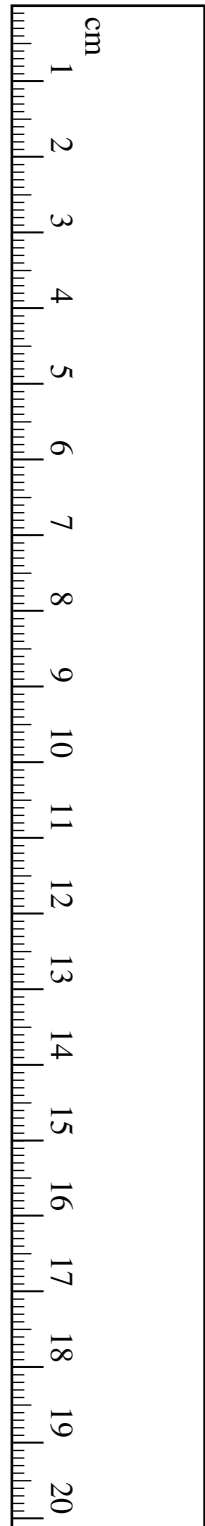
## DATA PAGES

### UNIT CONVERSION

	Common Imperial	Imperial and SI	SI
<b>Length</b>	1 mile = 1760 yards 1 mile = 5280 feet 1 yard = 3 feet 1 yard = 36 inches 1 foot = 12 inches	1 mile $\approx$ 1.609 km 1 yard = 0.9144 m 1 foot = 30.48 cm 1 inch = 2.54 cm <b>1 foot = 0.3048 m</b>	1 km = 1000 m 1 m = 100 cm 1 cm = 10 mm
<b>Mass (Weight)</b>	1 ton = 2000 pounds 1 pound = 16 ounces	2.2 pounds $\approx$ 1 kg 1 pound $\approx$ 454 g 1 ounce $\approx$ 28.35 g	1 t = 1000 kg 1 kg = 1000 g
<b>Volume</b>	1 gallon = 4 quarts 1 gallon (UK) $\approx$ $\frac{6}{5}$ gallons (US) 32 fluid ounces = 1 quart	1.06 quarts (US) $\approx$ 1 L 0.26 gallons (US) $\approx$ 1 L 3.52 fluid ounces (UK) $\approx$ 100 mL 3.38 fluid ounces (US) $\approx$ 100 mL	
<b>Common Abbrevia- tions</b>	mile = mi yard = yd feet = ' or ft inch = " or in ton = tn pound = lb ounce = oz fluid ounce = fl oz		kilometre = km metre = m centimetre = cm millimetre = mm tonne (metric ton) = t gram = g litre = L millilitre = mL

Temperature
$C = \frac{5}{9}(F - 32)$ $F = \frac{9}{5}C + 32$

# FORMULAE



## Trigonometry

(Put your calculator in Degree Mode)

- Right triangles

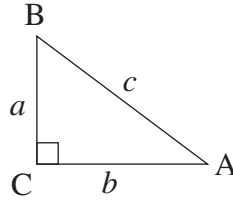
### *Pythagorean Theorem*

$$a^2 + b^2 = c^2$$

$$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$$

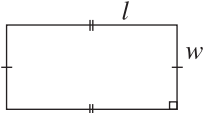
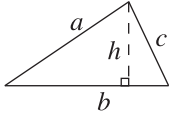
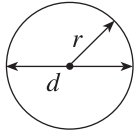
$$\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A = \frac{\text{opposite}}{\text{adjacent}}$$

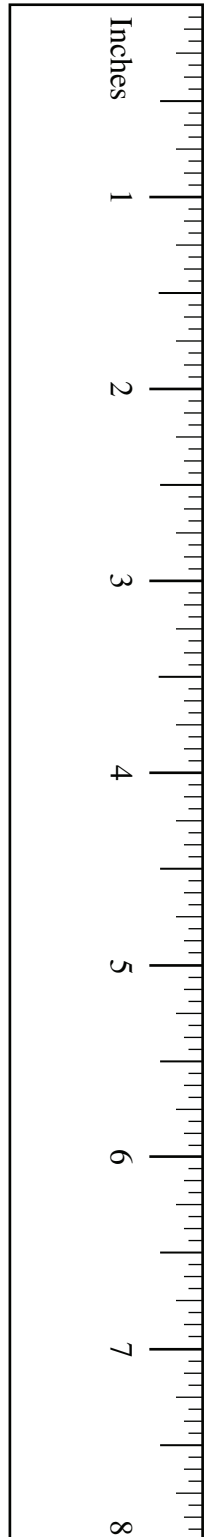


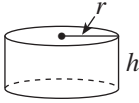
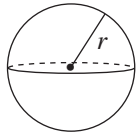
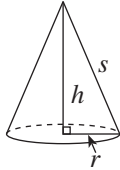
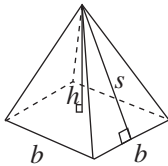
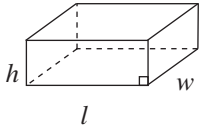
## GEOMETRIC FORMULAE

Key Legend	
$l$ = length $w$ = width $b$ = base $h$ = height $s$ = slant height $r$ = radius $d$ = diameter	$P$ = perimeter $C$ = circumference $A$ = area $SA$ = surface area $V$ = volume

Geometric Figure	Perimeter	Area
Rectangle 	$P = 2l + 2w$ or $P = 2(l + w)$	$A = lw$
Triangle 	$P = a + b + c$	$A = \frac{bh}{2}$
Circle 	$C = \pi d$ or $C = 2\pi r$	$A = \pi r^2$

**Note:** Use the value of  $\pi$  programmed in your calculator rather than the approximation of 3.14.



Geometric Solid	Surface Area
Cylinder 	$A_{top} = \pi r^2$ $A_{base} = \pi r^2$ $A_{side} = 2\pi r h$ $SA = 2\pi r^2 + 2\pi r h$
Sphere 	$SA = 4\pi r^2$ <b>or</b> $SA = \pi d^2$
Cone 	$A_{side} = \pi r s$ $A_{base} = \pi r^2$ $SA = \pi r^2 + \pi r s$
Square-Based Pyramid 	$A_{triangle} = \frac{1}{2} b s$ (for each triangle) $A_{base} = b^2$ $SA = 2bs + b^2$
Rectangular Prism 	$SA = wh + wh + lw + lw + lh + lh$ <b>or</b> $SA = 2(wh + lw + lh)$
General Right Prism	$SA =$ the sum of the areas of all the faces
General Right Pyramid	$SA =$ the sum of the areas of all the faces

VOLUME

$$V = \pi r^2 h$$

$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{1}{3} \pi r^2 h$$

$$V = \frac{1}{3} b^2 h$$

$$V = L \times w \times H$$

**Note:** Use the value of  $\pi$  programmed in your calculator rather than the approximation of 3.14.