M5T1 (extra) Notes: Circle (ext) - Solve for r or d Name: _____

Perfect Square Numbers are Integers that can be expressed as the Square of another integer
(it's the product of a number multiplied by itself)

Perfect Square Numbers

$0^2 = 0 \cdot 0 = 0$

$1^2 = 1 \cdot 1 = 1$

$2^2 = 2 \cdot 2 = 4$

$3^2 = 3 \cdot 3 = 9$

$4^2 = 4 \cdot 4 = 16$

$5^2 = 5 \cdot 5 = 25$

⋮

The INVERSE of Squaring a number is to take the Square Root "un-square"

$\sqrt{}$

$\sqrt{9} = 3 \rightarrow \sqrt{3^2} = 3$

$\sqrt{25} = 5 \rightarrow \sqrt{5^2} = 5$

$\sqrt{x^2} = x$

Given the area of a circle, use inverse operations to solve for the radius or diameter
($A = \pi \cdot r^2$)

Ex 1) *Exact (π)*

$A = 225\,\pi\ km^2$, *find the radius*

$A = \pi r^2$

$\frac{225\pi}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{225} = \sqrt{r^2}$ unsquare

$15 = r$

15 km = r

Ex 2) *Approx (use $\pi = 3.14$)*

$A \approx 254.34\ mm^2$, *find the diameter*

$A = 3.14 r^2$

$\frac{254.34}{3.14} = \frac{3.14r^2}{3.14}$

$\sqrt{81} = \sqrt{r^2}$

$9 = r$

$9 \cdot 2 =$ **18 mm = d**

Given the Circumference of a circle, use inverse operations to solve for the radius or diameter

$C = \pi \bullet d \quad (or\ \pi \bullet 2 \bullet r)$

Ex 3) *Exact (π)*

$C = 32.5\,\pi\ km,\ find\ the\ radius$

$C = 2\pi r$

$\frac{32.5\pi}{\pi} = \frac{2\pi r}{\pi}$

$\frac{32.5}{2} = \frac{2r}{2}$

$16.25 = r$

$16.25\ km = r$

Ex 4) *Approx (use π = 3.14)*

$C \approx 40.192\ mm,\ find\ the\ diameter$

$C = 3.14d$

$\frac{40.192}{3.14} = \frac{3.14d}{3.14}$

$12.8 = d$

$12.8\ mm = d$