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This program converts decimals to exact forms, either as a multiple of π ($\frac{a}{b}\pi$), a multiple of a square root ($\frac{a\sqrt{c}}{b}$), or as a fraction ($\frac{a}{b}$). This can be useful, for example, when an answer in radians is found in decimal form, and you suspect that it may be a multiple of π . Results are accurate to approximately 6 decimal places. Some examples are shown below. One of the subroutines used in the program, Fraction(), is a modified version of a function, Tofrac(), by Mike Janeba and Muhammad Bilal Aslam. Copyto_h(), by Samuel Stearley, is used to copy results to the home screen.

Place Pi_Root() and Copyto_h() in the same folder. With the number in the Last Answer position, run Pi_Root(). (I use a keyboard program to run it.) A popup menu lets you choose from results in terms of π , $\sqrt{}$, or a/b .

<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 2.243995 2.243995 </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 1/20 </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> <div> 1: π 2: $\sqrt{}$ 3: a/b </div> </div> <div> 2.243995 2.243995 </div> <div> main\pi_root() </div> <div> TYPE OR USE \leftrightarrow + (ENTER) OR (ESC) </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 2.243995 2.243995 </div> <div> 2.243995 $\frac{5\pi}{7}$ </div> <div> main\pi_root() Done </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 2/20 </div> </div>
<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 23.9791576 23.9791576 </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 1/20 </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> <div> 1: π 2: $\sqrt{}$ 3: a/b </div> </div> <div> 23.9791576 23.9791576 </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 1/20 </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 23.9791576 23.9791576 </div> <div> 23.9791576 $5\sqrt{23}$ </div> <div> main\pi_root() Done </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 2/20 </div> </div>
<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 3.272727 3.272727 </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 1/20 </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> <div> 1: π 2: $\sqrt{}$ 3: a/b </div> </div> <div> 3.272727 3.272727 </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 1/20 </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 3.272727 3.272727 </div> <div> 3.272727 $\frac{36}{11}$ </div> <div> main\pi_root() Done </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 2/20 </div> </div>
<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 1.758321 1.758321 </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 1/30 </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> <div> 1: π 2: $\sqrt{}$ 3: a/b </div> </div> <div> 1.758321 1.758321 </div> <div> main\pi_root() </div> <div> TYPE OR USE \leftrightarrow + (ENTER) OR (ESC) </div> </div>	<div> <div> F1 Tools F2 A13eBrq F3 Calc F4 Dther F5 Pr3mID F6 Clean Up </div> <div> 1.758321 1.758321 </div> <div> 1.758321 "No Simple Form" </div> <div> main\pi_root() </div> <div> MAIN RAD AUTO FUNC 2/2 </div> </div>