

SOME SAMPLE SOLUTIONS

Quesⁿ 8.

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

$$V = 20$$

$$20 = \frac{4\pi r^3}{3}$$

$$3 \times 20 = 4\pi r^3$$

$$\frac{3 \times 20}{4} = \pi r^3$$

$$\sqrt[3]{\frac{3 \times 20}{4 \times \pi}} = \sqrt[3]{r^3}$$

Take $\sqrt[3]{\quad}$ of both sides

$$\sqrt[3]{\frac{3 \times 20}{4\pi}} = r$$

on calc. $\boxed{2nd F}$ $\boxed{\sqrt[3]{\quad}}$ $\left((3 \times 20) \div (4 \times \pi) \right)$

$$r = 1.683 \dots$$

(9) $B = 2\pi \left(R + \frac{T}{2} \right) \times \frac{A}{360}$

$$T = 3 \quad B = 5 \quad R = 12$$

$$5 = 2\pi \left(12 + \frac{3}{2} \right) \times \frac{A}{360}$$

$$5 = 2\pi \left(13\frac{1}{2} \right) \times \frac{A}{360}$$

$$360 \times 5 = 2\pi \times 13\frac{1}{2} \times A$$

$$\frac{1800}{2\pi \times 13\frac{1}{2}} = A$$

A = on calculator

$$1800 \div (2 \times \pi \times 13 \text{ after 1 etc})$$

$$A = 21.22 \dots$$

(10) $B = \frac{m}{h^2}$

$$h = 1.65 \quad B = 22$$

$$(1.65)^2 \times 22 = \frac{m}{(1.65)^2}$$

$$m = 22 \times (1.65)^2 \times \frac{2}{\pi}$$

$$= 59.895$$

11. $T = \frac{1}{5} \sqrt{L}$

b) $T = 1$

$$5 \times 1 = \frac{1}{5} \sqrt{L} \times 5$$

$$(5)^2 = (\sqrt{L})^2 \quad \text{Square both sides}$$

$$L = 25 \text{ cm.}$$

13. $D = \frac{1}{2} g t^2$

$$D = 100 \quad g = 9.8$$

$$100 = \frac{1}{2} \times 9.8 t^2$$

$$100 = \frac{4.9 t^2}{4.9}$$

divide both sides by 4.9

$$\sqrt{t^2} = \sqrt{\frac{100}{4.9}}$$

take $\sqrt{\quad}$ of both sides

$$t = \sqrt{\frac{100}{4.9}}$$

on cal $\sqrt{(100 \div 4.9)} = 4.517 \dots$

or $100 \div 4.9 = \sqrt{\quad}$

$$15. V = \pi r^2 h$$

$$b) h = ? \quad V = 80 \quad r = 5$$

$$80 = \pi \times 5^2 \times h$$

$$\frac{80}{\pi \times 5^2} = h$$

$$h = \frac{80}{25\pi}$$

= on calc.

$$80 \div (25 \times \pi) =$$

$$h = 1.01859 \dots$$

$$(c) V = 100 \quad h = 1000$$

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

$$100 = \pi \times r^2 \times 1000$$

cancel out some zeros

$$\frac{1}{10\pi} = \frac{10\pi r^2}{10\pi} \quad \text{divide by } 10\pi$$

$$r^2 = \frac{1}{10\pi}$$

take square root

$$\sqrt{r^2} = \sqrt{\frac{1}{10\pi}}$$

$$r = \sqrt{\frac{1}{10\pi}}$$

on calc $\sqrt{1 \div (10 \times \pi)}$

$$r = 0.1784 \dots$$

or $1 \div 10 \div \pi = \sqrt{\quad}$

$$16. A = 4\pi r^2$$

$$b) A = 1 \quad r = ?$$

$$\frac{1}{4\pi} = \frac{4\pi r^2}{4\pi} \quad \div \text{ by } 4\pi$$

$$\frac{1}{4\pi} = r^2$$

$$r^2 = \frac{1}{4\pi}$$

$$\sqrt{r^2} = \sqrt{\frac{1}{4\pi}} \quad \text{take } \sqrt{\quad} \text{ both sides}$$

$$r = \sqrt{\frac{1}{4\pi}}$$

$$\sqrt{1 \div 4 \div \pi}$$

$$\text{or } \sqrt{1 \div (4 \times \pi)}$$

$$r = 0.282 \dots$$

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