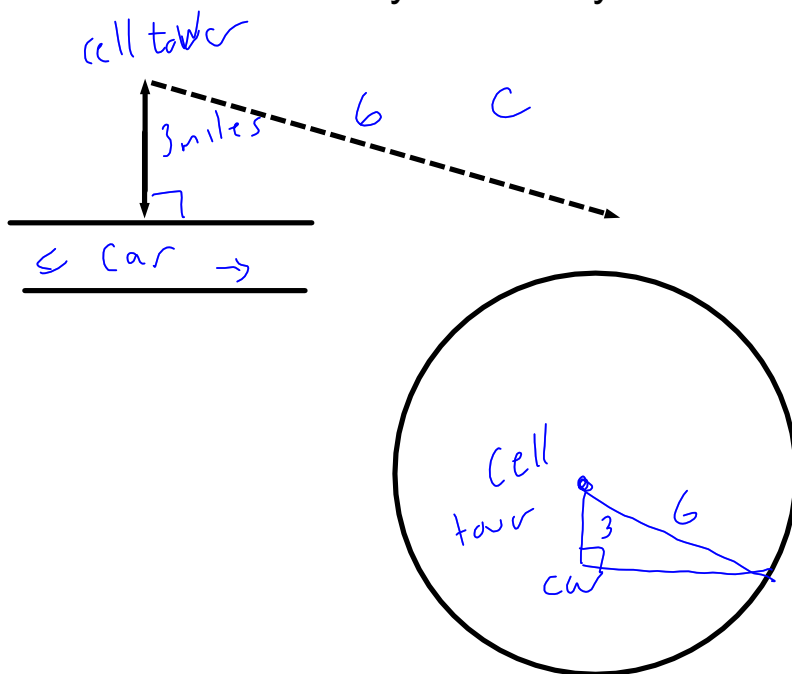


Bell Work:

Solve: You are a passenger in a car. You are using a cell phone that connects with the cell tower shown. The tower has an effective range of 6 miles. How many miles do you have to finish your call?



$$\begin{aligned}
 a^2 + b^2 &= c^2 \\
 3^2 + b^2 &= 6^2 \\
 9 + b^2 &= 36 \\
 b^2 &= 36 - 9 \\
 \sqrt{b^2} &= \sqrt{27} \\
 b &= 5.19 \text{ miles}
 \end{aligned}$$

Simplify

$$32^{1 \cdot \frac{1}{5}}$$

1) $32^{1/5}$

$$32 = 2^5$$

$$2^5 \cdot \frac{1}{5}$$

$$2^1 = 2$$

$$8 = 2^3$$

(2) $8^{1/4} \cdot 32^{1/4}$

$$2^{3 \cdot \frac{1}{4}} \cdot 2^{5 \cdot \frac{1}{4}}$$

$$2^{\frac{3}{4}} \cdot 2^{\frac{5}{4}}$$

$$2^{\frac{8}{4}} = 2^2 = 4$$

$$8 \cdot 32 = 256$$

$$256^{1/4} = 4$$

$$\sqrt[4]{256}$$

(3) $12^{1/3} \cdot 45^{1/3} \cdot 50^{1/3}$

$$27000^{1/3}$$

$$27^{1/3} = 3$$

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$$\sqrt[3]{27,000}$$

When converting from an exponential expression to a radical expression, the denominator is the index, and the numerator is the power.

$$4) z^{2/5}$$

$$\sqrt[5]{z^2}$$

index $\sqrt{\quad}$

$$5) (2y)^{1/3}$$

$$\sqrt[3]{(2y)}$$

$$(6) a^{-1.6}$$

$$a^{-8/5} = \frac{1}{a^{8/5}} = \frac{1}{\sqrt[5]{a^8}} \cdot \frac{\sqrt[5]{a^2}}{\sqrt[5]{a^2}} = \frac{\sqrt[5]{a^2}}{\sqrt[5]{a^{10}}}$$

$$-1.6 = -\frac{16}{10} = -\frac{8}{5}$$

$$\frac{\sqrt[5]{a^2}}{a^2}$$

$$\sqrt[\text{index}]{x^3} \rightarrow \text{exponent (power)} \quad \sqrt{x^3} = x^{\frac{3}{2}}$$

When converting a radical expression into an exponential expression, the exponent (power) goes in the numerator and the index goes into the denominator

$$7) \sqrt[3]{x^5} \\ x^{\frac{5}{3}}$$

$$(8) \sqrt{(6a)^4} \\ (6a)^{\frac{4}{2}} \\ (6a)^2 \\ 36a^2$$

$$(9) \sqrt[4]{(5ab)^7} \\ (5ab)^{\frac{7}{4}}$$