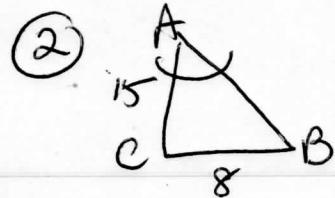


MR12 Final Review Ans. key.

$$\begin{aligned} \textcircled{10} & \quad \sqrt{80} + 3\sqrt{45} \\ & \quad \sqrt{16\sqrt{5}} + 3\sqrt{9\sqrt{5}} \\ & \quad 4\sqrt{5} + 3\cdot 3\sqrt{5} \\ & \quad 4\sqrt{5} + 9\sqrt{5} = 13\sqrt{5} \end{aligned}$$



$$\begin{aligned} \cot A &= \frac{1}{\tan A} \\ \tan A &= \frac{8}{15} \text{ so } \cot A = \frac{15}{8} \\ \textcircled{4} & \quad \frac{15}{8} \end{aligned}$$

$$\begin{aligned} \textcircled{7} & \quad \frac{3}{\sqrt[3]{4(2 \cdot 2 \cdot 2) x^2 \cdot x^2 \cdot x^3 \cdot y \cdot y \cdot y}} \\ & \quad 2x^2y \sqrt[3]{4y} \end{aligned}$$

$$\begin{aligned} \textcircled{11} & \quad \text{Right triangle ABC with angle A at the top vertex. Side AC is labeled 24, side BC is labeled 32, and the hypotenuse AB is labeled 40.} \\ \sec A &= \frac{40}{24} \\ \csc A &= \frac{24}{40} \\ \csc &= \frac{40}{32} \\ \sin &= \frac{32}{40} \end{aligned}$$

$$\begin{aligned} \textcircled{20} & \quad \frac{5}{2-\sqrt{12}} \left(2+\sqrt{12} \right) = \frac{10+5\sqrt{12}}{4+2\sqrt{12}-2\sqrt{12}-\sqrt{44}} = \frac{10+5\sqrt{4}\sqrt{3}}{4-12} = \frac{10+10\sqrt{3}}{-8} \\ & \quad = \frac{5+5\sqrt{3}}{-4} \end{aligned}$$

$$\begin{aligned} \textcircled{21} & \quad x^2 - 2x - 3 > 0 \\ & \quad (x-3)(x+2) \\ & \quad x=3 \quad x=-2 \end{aligned}$$

(1)

greater > or
Less < and
GOLA

$$\textcircled{23} \quad y = -5 \sin \frac{1}{3}(x - \frac{\pi}{2}) - \text{horizontal shift}$$

amplitude \Rightarrow frequency

$$\text{Period} = \frac{2\pi}{b} = \frac{2\pi}{\frac{1}{3}} = 2\pi \div \frac{1}{3} = 2\pi \cdot 3 = 6\pi$$

$$\begin{aligned} \textcircled{17} & \quad 81x^2 - 441y^2 \\ & \quad 9(9x^2 - 49y^2) \\ & \quad 9(3x - 7y)(3x + 7y) \\ & \quad 9(3x - 7y)(3x + 7y) \end{aligned}$$

$$\begin{aligned} \textcircled{30} & \quad \left(x^0 + x^{\frac{2}{3}} \right)^{-1} \\ & \quad 64^0 + 64^{\frac{2}{3}} = \\ & \quad (1 + 16)^{-1} = \frac{1}{17} \end{aligned}$$

$$\begin{aligned} \textcircled{31} & \quad \sum_{k=2}^7 4(3)^{k-1} \quad | \quad \begin{array}{r|l} k & 4(3)^{k-1} \\ \hline 2 & 4(3)^{2-1} \\ 3 & 4(3)^{3-1} \\ 4 & 4(3)^{4-1} \\ 5 & 4(3)^{5-1} \\ 6 & 4(3)^{6-1} \\ 7 & 4(3)^{7-1} \end{array} \quad | \quad \begin{array}{r} y \\ \hline 12 \\ 36 \\ 108 \\ 324 \\ 972 \\ 2916 \end{array} \\ & \quad \sum 4323 \end{aligned}$$