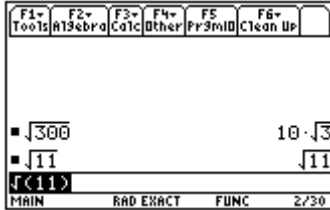


Module 2 - Answers

2.1

Answer 1 2.1.1



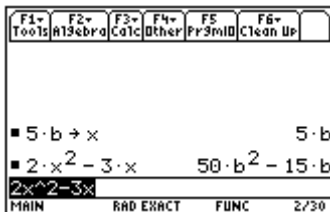
Answer 2 2.1.2 The TI-89 returns the expression $\cos\left(\frac{\pi}{9}\right)$ unchanged because it cannot give an exact value.

Answer 3 2.1.3 $\log(32) = \frac{5 \ln(2)}{\ln(10)} \approx 1.50515$

2.2

Answer 1 2.2.1 $50b^2 - 15b$

Here is one possible keying sequence.



2.3

Answer 1 **2.3.1** The factors are the sum and difference of the square roots of the two terms and have the form $(x - a)(x + a)$, where a is the square root of the second term of the original expression.

Answer 2 **2.3.2** $x^2 - a^2 = (x - a)(x + a)$

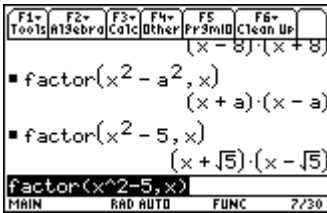
Answer 3 **2.3.3**



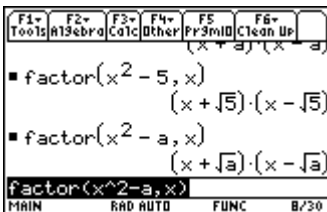
$$\begin{aligned} & \blacksquare \text{factor}(x^2 - a^2, x) \\ & \qquad (x + a) \cdot (x - a) \\ & \text{factor}(x^2 - a^2, x) \end{aligned}$$

Answer 4 **2.3.4** $(x - \sqrt{5})(x + \sqrt{5})$

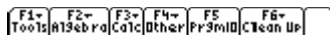
Answer 5 **2.3.5**



Answer 6 **2.3.6** $(x - \sqrt{a})(x + \sqrt{a})$, which can be confirmed by using the `factor(` command.



Answer 7 **2.3.7**



$$\begin{aligned} & \blacksquare \text{cFactor}(x^2 + 4, x) \\ & \qquad (x + -2 \cdot i) \cdot (x + 2 \cdot i) \\ & \text{cFactor}(x^2 + 4, x) \end{aligned}$$

Answer 8 **2.3.8** Each row begins and ends with 1, and each additional entry is the sum of the two entries directly above it. For example, the second term in the fourth row, 5, is the sum of 1 and 4, the first two terms in the third row.

Answer 9 **2.3.9** The next line in the triangle shown is 1 6 15 20 15 6 1,
 so predict that $(x + 1)^6 = x^6 + 6x^5 + 15x^4 + 20x^3 + 15x^2 + 6x + 1$

Answer 10 **2.3.10**



■ expand((x + 1)·(x² - x + 1))
 expand((x+1)(x^2-x+1))
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Self Test

Answer 1 $\frac{(\sqrt{3}-1)\sqrt{2}}{4}$

Answer 2 $\frac{\sqrt{15}}{105}$

Answer 3 A, B

Answer 4 False. Even in Exact mode, a decimal approximation is found by pressing \blacklozenge **ENTER**.

Answer 5 **CATALOG** **.**

Answer 6 The **I** key only assigns a value to a variable for the current expression. The **STO** key assigns a value to a variable until the variable is deleted, the Clean Up menu is used, or until a new value is assigned to the variable.

Answer 7 Students are actively involved in learning instead of passively listening. They have a sense of ownership when they discover a concept. They are more interested in the proof of a theorem they have discovered.