**Question 1:** Simplify: $\dfrac{\left(1+\dfrac{2}{c-2}\right)}{\left(1-\dfrac{2}{c-2}\right)}$

**[3]**

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**Question 2:** Rationalize the numerator and simplify: $\dfrac{\sqrt{x}-6}{x-36}$

**[3]**

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**Question 3:** Simplify: $\sqrt[4]{\dfrac{t^{1/2}\sqrt{st}}{s^{2/3}}}$

**[4]**

**Question 4:** Find an equation of the line through the points $(2, -4)$ and $(-1, 1)$ .

**[3]**

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**Question 5:** Find an equation of the line through $(-3, 5)$ that is parallel to the line $x + 2y = 6$

**[4]**

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**Question 6:** Do the lines $2x - 3y = 4$ and $x + 3y = 5$ intersect?

**[3]**

**Question 7:** Determine $\cos(5\pi/6) - \tan(5\pi/6)$

**[3]**

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**Question 8:** If $\sin(\theta) = 2/3$ where $\pi/2 < \theta < \pi$ then determine $\tan(\theta)$

**[3]**

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**Question 9:** Find all values of $x$ in the interval $[0, 2\pi]$ for which $2\cos^2(x) - 1 = 0$ .

**[4]**

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**Question 10:** Let $f(x) = x^2 - 2x + 3$ . Evaluate and simplify the difference quotient $\dfrac{f(a+h) - f(a)}{h}$ .

**[6]**

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**Question 11:** Determine the domain of $g(x) = \dfrac{1}{\sqrt{x}} - \sqrt{4 - x}$

**[4]**

**Question 12:** Express the area $A$ of an equilateral triangle as a function of its perimeter $P$.

**[5]**

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**Question 13:** Let $f(x) = \sqrt{x+3}$ and $g(x) = x^2 - 3$. Find $(g \circ f)(x)$ and state the domain.

**[3]**

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**Question 14:** Let $H(x) = \sec^2\left(\sqrt{x^2-1}\right)$ and $h(x) = x^2$. Find functions $f$ and $g$ so that $H = f \circ g \circ h$. (There are several possible correct answers.)

**[2]**

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