

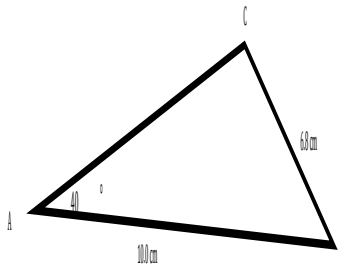
FORMULAE

$\theta = \sqrt{\frac{\sum(x - \bar{x})^2}{n}}$	$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$
$a^2 = b^2 + c^2 - 2bc \cos A$	$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$

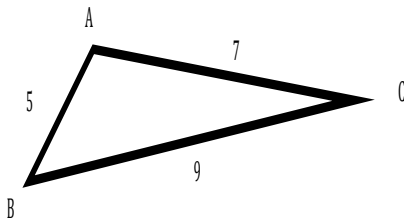
Selected Response: Choose the appropriate response on the answer sheet or SCANTRON.

1. What is the measure of $\angle C$?

- (A) 20°
- (B) 26°
- (C) 69°
- (D) 71°



2. Which equals the measure of $\angle A$?



- (A) $\cos^{-1} \left(\frac{5^2 + 9^2 - 7^2}{2(5)(9)} \right)$
- (B) $\cos^{-1} \left(\frac{7^2 + 5^2 - 9^2}{2(7)(5)} \right)$
- (C) $\cos^{-1} \left(\frac{9^2 + 5^2 - 7^2}{2(9)(5)} \right)$
- (D) $\cos^{-1} \left(\frac{9^2 + 7^2 - 5^2}{2(9)(7)} \right)$

3. Simplify completely: $5\sqrt{7} + 3\sqrt{28}$

- (A) $11\sqrt{7}$
- (B) $17\sqrt{7}$
- (C) $11\sqrt{14}$
- (D) $8\sqrt{35}$

4. Simplify completely: $\sqrt{8x^{17}}$

- (A) $2x^8\sqrt{2}$
- (B) $2x^8\sqrt{2x}$
- (C) $4x^{16}\sqrt{2x}$
- (D) $4x^8\sqrt{2x}$

5. Write $3x^3\sqrt{5x}$ as an entire radical.

- (A) $\sqrt{15x^4}$
- (B) $\sqrt{15x^7}$
- (C) $\sqrt{45x^4}$
- (D) $\sqrt{45x^7}$

6. A student was asked to simplify $\frac{x\sqrt{18x^3}}{3}$ but did not complete a correct solution. Which step contains her first error?

Solution:

	Step 1:	$\frac{x\sqrt{9 \cdot 2 \cdot x^2 \cdot x}}{3}$	(A) Step 1
	Step 2:	$\frac{x \cdot 9x^2 \sqrt{2x}}{3}$	(B) Step 2
	Step 3:	$\frac{9x^3 \sqrt{2x}}{3}$	(C) Step 3
	Step 4:	$3x^3 \sqrt{2x}$	(D) Step 4

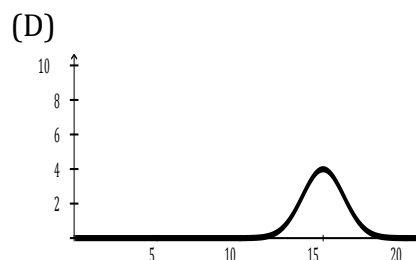
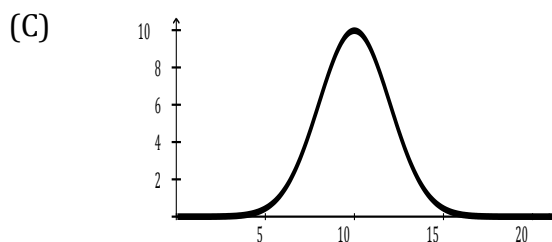
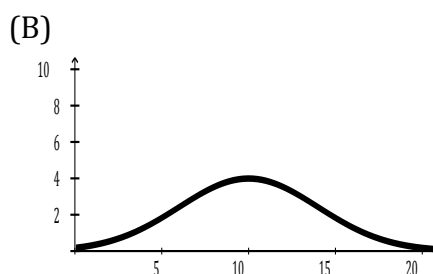
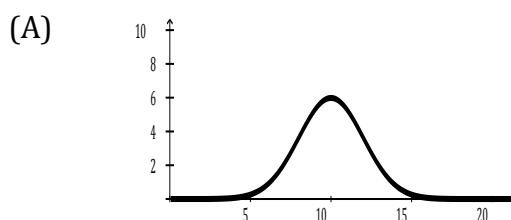
7. Simplify completely: $\frac{5\sqrt{32}}{2\sqrt{3}}$

(A) $\frac{10\sqrt{6}}{3}$	(B) $\frac{40\sqrt{6}}{3}$
(C) $\frac{5\sqrt{96}}{6}$	(D) $\frac{10\sqrt{96}}{12}$

8. What are the restrictions on the variable for $\sqrt{x+2}$?

- (A) $x \geq -2$
 (B) $x > -2$
 (C) $x \geq 2$
 (D) $x > 2$

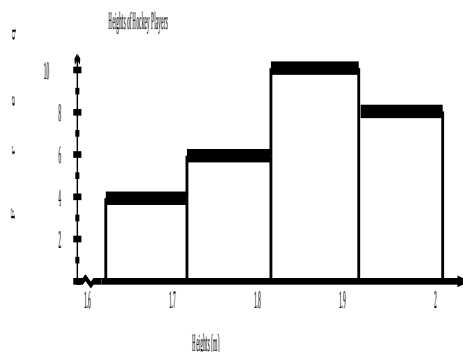
9. Which represents data with the largest standard deviation?



10. A set of data is normally distributed. What percent of the data is within two standard deviations of the mean?

- (A) 47.5
 (B) 68
 (C) 95
 (D) 99.7

11. The histogram shown represents the heights of hockey players on a professional hockey team. How many players have a height between 1.8 m and 2.0 m?

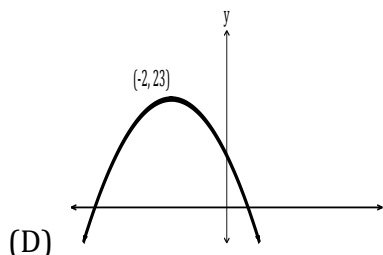
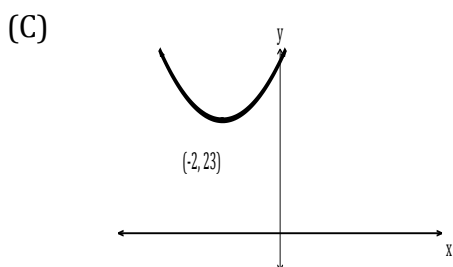
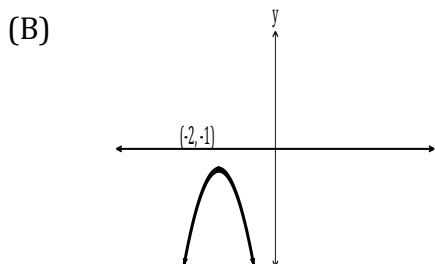
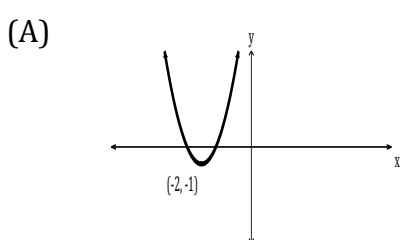


- (A) 10
 (B) 18
 (C) 24
 (D) 28

12. Which quadratic function would result in the widest parabola when graphed?

- (A) $y = 4.9x^2 - 2x + 0.9$ (B) $y = x^2 + 5x + 1$
 (C) $y = \frac{3}{2}x^2 - 4x - 2$ (D) $y = \frac{1}{3}x^2 - x + 4$

13. The function $y = -3x^2 - 12x - 13$ has axis of symmetry $x = -2$. Which represents the function?



14. What is the vertex of $y = 2x^2 + 8x - 5$?

- (A) $(-2, -29)$ (B) $(-2, -13)$
 (C) $(2, 15)$ (D) $(2, 19)$

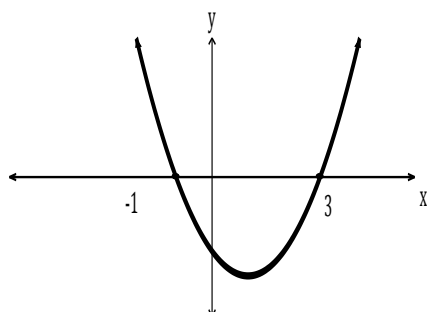
15. What is the domain and range for $y = -2x^2 - 4x - 5$?

- (A) $x \in \mathbb{R}$ and $y \leq -3$
 (B) $x \in \mathbb{R}$ and $y \geq -3$
 (C) $x \leq -1$ and $y \in \mathbb{R}$
 (D) $x \geq -1$ and $y \in \mathbb{R}$

16. The graph of a quadratic function has vertex $(1, -4)$ and opens upward. How many x-intercepts does it have?

- (A) 0
- (B) 1
- (C) 2
- (D) 3

17. What is the equation for the axis of symmetry of the parabola below?



- (A) $y = 1$
- (B) $x = 1$
- (C) $x = -1$
- (D) $x = 3$

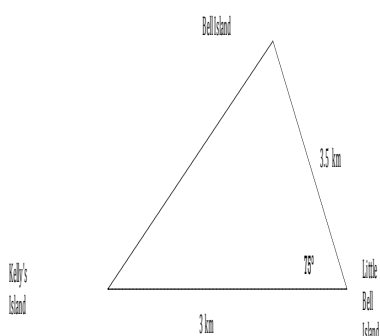
18. A parabola has x-intercepts of $(-2, 0)$ and $(-8, 0)$. What is the axis of symmetry?

- (A) $x = -5$
- (B) $x = -3$
- (C) $y = -5$
- (D) $y = -3$

Constructed Response:

Answers to be written on this paper in the space provided. Show all workings.

19. A boat travels from Bell Island to Kelly's Island to Little Bell Island, and returns directly back to Bell Island. What is the total distance travelled? [4 marks]



20. Simplify completely: $5\sqrt{6} (\sqrt{3} + 3\sqrt{12} - \sqrt{2})$ [3 marks]

21. State the **restrictions** on x , **solve** the equation, and then **check** for extraneous roots. [4 marks]

$$\sqrt{3x + 1} - 3 = -4$$

22. A group of 62 students wrote the physics midterm. The results were normally distributed with an average of 66% and a standard deviation was 7%. [3 marks]

(A) Sketch and label the normal curve that would represent the physics midterm results.

(B) What percentage of the class scored higher than 73%?

(C) How many students scored lower than 73%?

23. Algebraically determine the **vertex** and **y-intercept** for the function $y = x^2 - 2x - 8$. Sketch the graph, labelling all key points. [3 marks]

