Instructions

1. You may require a protractor and a ruler (metric and imperial) for paper versions of the questions.

2. You may use math tiles.

3. When using your calculator (scientific or approved graphing calculator):
   • use the programmed value of $\pi$ rather than the approximation of 3.14.
   • round only in the final step of the solution.

4. Diagrams are not necessarily drawn to scale.

5. For questions marked with ☹️, do not use your calculator.
PART A: MULTIPLE-CHOICE QUESTIONS

1. The function \( y - 3 = \frac{2}{5}(x + 1) \) will go through which point on the following graph?

\[
\begin{align*}
\text{A. Point A} \\
\text{B. Point B} \\
\text{C. Point C} \\
\text{D. Point D}
\end{align*}
\]
2. James correctly graphed $y = \frac{1}{3}x + 7$.

**Note:** This graph is provided for rough work.

Which of the following student graphs should match James’ graph?

A. **Student A’s graph**

B. **Student B’s graph**

C. **Student C’s graph**

D. **Student D’s graph**
3. Which of the following coordinate pairs would be a possible point Q so that line CQ is perpendicular to line AB?

- A. Q(−3, 3)
- B. Q(−3, 0)
- C. Q(2, 1)
- D. Q(4, 5)
4. A line segment has a slope of \(\frac{1}{5}\) and passes through point F.

What are the coordinates of the \(x\)-intercept of the line segment?

A. \((-11, 0)\)
B. \((0, -11)\)
C. \((0, 9)\)
D. \((9, 0)\)
5. How long is the fork below?

Note: This diagram is drawn to scale.

A. \(4 \frac{3}{8}\) inches
B. \(4 \frac{6}{8}\) inches
C. 4.6 inches
D. 11.1 inches

6. A surveyor drew a scale diagram of a building. Unfortunately, his plans got water on them.

Note: This diagram is drawn to scale.

Help the surveyor by figuring out the missing angle of elevation.

A. 18°
B. 35°
C. 40°
D. 55°
7. Which of the following triangular prisms have the same volume, to the nearest cubic metre? Diagrams are to scale.

I. \[ \begin{array}{c}
3.5 \text{ m} \\
\theta \\
12 \text{ m}
\end{array} \]

II. \[ \begin{array}{c}
3.4 \text{ m} \\
15 \text{ m} \\
10 \text{ m}
\end{array} \]
Volume = 255 m\(^3\)

III. \[ \begin{array}{c}
x \\
7.8 \text{ m} \\
10 \text{ m}
\end{array} \]
These diagrams are drawn to scale.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III
8. A company has created an inflatable building that resembles a cube. On their website, they advertise a 3375 cubic foot building. George wants to know what the dimensions of the building are. What is its length to the nearest foot?

A. 10 ft  
B. 15 ft  
C. 34 ft  
D. 58 ft

If students choose to use the online calculator for the exam, practice using the calculator is recommended.

9. Determine the perimeter of the shape below in inches.

A. 4.8 inches  
B. 5 $\frac{1}{2}$ inches  
C. 5 $\frac{3}{8}$ inches  
D. 5 $\frac{7}{8}$ inches
10. Determine the lateral surface area of a right cone with a height of 5.5 cm.

Note: Diagram is drawn to scale.

A. 36 cm²
B. 39 cm²
C. 73 cm²
D. 77 cm²