Read the instructions below.

Along with this booklet, make sure you have the Answer Booklet and the Formula Sheet.

You may use any space in this book for rough work for multiple-choice questions only.

The diagrams in these booklets are not all drawn to scale.

ATTENTION:

Unlike in the actual assessment booklet, the questions in this booklet are sorted by strand.

There are more multiple-choice questions in this booklet than in a regular booklet.

Continue to read the directions on the cover of the Answer Booklet.
1. What is the value of this expression when $x = -5$ and $y = -3$?

\[ \frac{2}{3} x^3 y^2 \]

a. $-750$

b. $-60$

c. $60$

d. $750$

2. Cereal comes in two different-sized boxes.
   - Box A costs $5.25 for 250 g.
   - Box B costs $4.50 for 375 g.

Which box is cheaper per gram, and how much cheaper per gram is it?

a. Box B, $0.009 per gram

b. Box B, $0.75 per gram

c. Box A, $0.033 per gram

d. Box A, $35.71 per gram

3. Which of these expressions is equivalent to $(3x - 4y) - (-5x + y)$?

a. $8x - 5y$

b. $8x - 3y$

c. $-2x - 5y$

d. $-2x - 3y$
Information from linear relationships are shown in three of the tables below.

One table shows information from a non-linear relationship.

Use first differences to determine which option shows information from a non-linear relationship.

- **a**
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- **b**
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- **d**
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A scatter plot with a line of best fit is shown below.

What is the equation of the line of best fit?

- **a** \( A = 10 - 3t \)
- **b** \( A = 30 - 3t \)
- **c** \( A = 10 + 3t \)
- **d** \( A = 30 + 3t \)
6. Water in a swimming pool is draining at a constant rate. The graph below shows information about the depth of the water at certain times since the draining began.

How long since the draining began will it take for the water to get to a depth of 90 cm?

a) 5 hours  

b) 6 hours  

c) 7 hours  

d) 9 hours

7. The graph shown represents the four segments of Chen’s trip home from a lake.

Which statement about his trip is true?

a) He stopped for a total of 3 minutes.  

b) He travelled 120 m in the first minute.  

c) He travelled the fastest between minute 4 and minute 6.  

d) He travelled the same speed in the first and fourth segments of his trip.
Go to the Answer Booklet and complete the six open-response questions before continuing with question 14.

8 Open-Response
9 Open-Response
10 Open-Response
11 Open-Response
12 Open-Response
13 Open-Response

14 Which of the following is not an equation of a line?
   a) $y = -4$
   b) $y = 9x^2$
   c) $y = 3x + 6$
   d) $7x - 2y + 28 = 0$

15 The rise to run ratio of a ramp must be less than 0.13.

Which of these ramps meets this requirement?

a) [Diagram with 100 cm rise, 130 cm run]
   b) [Diagram with 200 cm rise, 130 cm run]
   c) [Diagram with 50 cm rise, 13 cm run]
   d) [Diagram with 200 cm rise, 13 cm run]
16. Four line segments are shown on this grid.

Which statement about the line represented by \( y = \frac{3}{5}x - 2 \) is true?

a. It is parallel to line segment AB.

b. It is parallel to line segment EF.

c. It is perpendicular to line segment CD.

d. It is perpendicular to line segment GH.

17. A line on a graph has a rise of \(-3\) for each run of \(2\), and a \(y\)-intercept of \(-5\).

Which of the following is the equation of the line?

a. \( y = \frac{3}{2}x + 5 \)

b. \( y = \frac{2}{3}x + 5 \)

c. \( y = -\frac{3}{2}x - 5 \)

d. \( y = -\frac{2}{3}x - 5 \)

18. The total cost of purchasing T-shirts for the math club, \(C\), in dollars, is represented by the equation \(C = 20 + 8n\), where \(n\) is the number of T-shirts purchased.

The club will order a minimum of 5 T-shirts and a maximum of 10.

What is the range of possible values for the total cost of the T-shirts?

a. $40 to $80

b. $40 to $100

c. $60 to $80

d. $60 to $100
19. The rectangular prism pictured has a square base and a volume of 1728 cm³.

Which of these values of \( h \) and \( l \) produce the prism with the smallest surface area?

a. \( h = 108 \) cm, \( l = 4 \) cm
b. \( h = 48 \) cm, \( l = 6 \) cm
c. \( h = 27 \) cm, \( l = 8 \) cm
d. \( h = 12 \) cm, \( l = 12 \) cm

20. Two different designs for fencing a rectangular garden are pictured.

- Design A uses fencing on all 4 sides.
- Design B uses fencing on only 3 sides.

Each design uses 6 m of fencing in total and has a width of 1 m.

Which design creates the garden with the largest area, and what is that area?

a. Design A, 2 m²
b. Design A, 5 m²
c. Design B, 4 m²
d. Design B, 6 m²
Two chocolate bar options are available:
- a large bar in the shape of a triangular prism
- 6 identical small bars that form a hexagonal prism when joined

Both options are pictured.

Option 1: Large Bar

Option 2: 6 Small Bars

Which of the following statements correctly compares the amount of chocolate in the two options?

a The 6 small bars contain the same amount of chocolate as the large bar.

b The 6 small bars contain 6 times the amount of chocolate as the large bar.

c The large bar contains 2 times the amount of chocolate as the 6 small bars.

d The large bar contains 3 times the amount of chocolate as the 6 small bars.

A park is surrounded by 4 streets.

What is the value of $x$?

a 50°

b 65°

c 70°

d 80°