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| **High School** | |
| **Yearly Examination** | |
| **2013**  **Year 10**  **Advanced Mathematics Course** | |
| **General Instructions**   * Reading time: 5 minutes * Working time: 2 hours * There will be a short break between Section 1 and Section 2 * Write using black or blue pen * You may use a pencil to draw or complete diagrams * Attempt ALL questions * Approved calculators may be used in Section 2. * Write your Name and Teacher’s Name in the spaces provided. * A formula Sheet is on the reverse of this page and can be detached and used in all sections of the test. | **Total Marks – 100**  **Section 1**  Non Calculator Section.  **25 marks**  Time allowed for this section is 30 minutes.  Write all answers in the spaces provided.  **Section 2**  Time allowed for this section is 1 hour and 30 minutes.  **Part A**  Multiple Choice Section.  Mark your answers on the separate answer sheet at the end of the examination.  **50 marks**  **Part B**  Longer Answer Section.  Write all answers in the spaces provided.  **25 marks** |

Formula Sheet

**Pythagoras’ Theorem**



*c* = hypotenuse

*a* and *b* are the shorter sides

**Circumference of a circle**



*d* = diameter

**Area of a circle**



*r* = radius

**Area of a parallelogram**



*b* = base

*h* = perpendicular height

**Area of a rhombus or kite**



*x* and *y* are the diagonals

**Area of a trapezium**



*h* = perpendicular height

*a* and *b* are the parallel sides

**Volume of a prism**



*A* = area of base

*h* = perpendicular height

**Volume of a pyramid**



*A* = area of base

*h* = perpendicular height

**Volume of a cylinder**



*r* = radius

*h* = perpendicular height

**Volume of a cone**



**Volume of a sphere**



**Surface Area of a Cylinder**



**Surface Area of Cone**



*r* = radius

*l* = slant height

**Surface Area of a sphere**



**Trigonometric formulae for a triangle ABC.**

**Sine Rule**



**Cosine Rule**



or



**Area of a triangle**



**Simple interest**



*P* = Principal

*R* = interest rate per time period as a decimal

*T* = number of time periods

**Compound Interest**



*A =* Final amount to which the investment grows

*P* = Principal

*r* = interest rate per compounding period as a decimal

*n* = number of compounding periods

**Depreciation**



*SV =* Salvage Value to which the initial value falls

*IV* = Initial Value

*r* = depreciation rate per compounding period as a decimal

*n* = number of compounding periods

**Gradient of a line**



 and  are points on the line

*m* = gradient

**Midpoint of a line segment**



**Length of a line segment**



**Equation of a line**



or



*b* = *y* intercept

Yearly Examination

**Advanced Mathematics**

Class/Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Section 1**

**25 marks**

Time allowed for this section is 30 minutes

Answer Questions 1–25 in the spaces provided.

Calculators are **NOT** to be used in this section.

There will be a short break between Section 1 and Section 2.

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| **Section 1** Non Calculator Section | |
|  | Write all working and answers in the spaces provided on this test paper. |
| 1. | …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 2. | …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 3. | …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 4. | Marcus is offered a 20% discount on a game marked at $25.  What would he pay for the game after the discount?  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 5. | The ratio of first class passengers to economy class passengers on a train is 3 : 17.  There are 60 first class passengers on the train.  How many passengers are on the train altogether?  …………………………………………………………………………………………………………….  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 6. | The diagram shows two pairs of parallel railway tracks at the place where they intersect. Two angles are marked.  What is the value of w?  ……………………………………  ……………………………………. |

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| 7. | A triangular wooden brace supports a shelf as shown.  The angle between the shelf and the brace is 149o and the angle between the brace and the wall is *x*o.  What is the value of *x*?  …………………………………………  ………………………………………….  ………………………………………… |
| 8. | What is the size of the interior angle markedin the regular pentagon shown?  ………………………………………………….  ………………………………………………….  ………………………………………………… |
| 9. | Draw the image of the quadrilateral *ABCD*, after it is reflected in the line |

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| 10. | A tangram puzzle is made up of seven pieces which make a large square with sides 10 cm.  The points *A* and *B* are the midpoints of the respective sides of the large square and *C* is the midpoint of *AB*.  What is the area of the smaller shaded square?  …………………………………………………………………………………………………………….  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 11. | How many minutes are in  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 12. | The area of the rectangle *ABCD* is 15 cm2.  *BC* = 2.5 cm.    What is the perimeter of the rectangle *ABCD*?  …………………………………………………  ..……………………………………………….  ………………………………………………… |
| 13. | Calculate the area of the trapezium shown.  ……………………………………………………  …………………………………………………….  ……………………………………………………  ……………………………………………………. |
| 14. | *PQR* is a right triangle.  Between which two integers does the value of *x* lie?  ……………………………………………………  ……………………………………………………  …………………………………………………… |

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| 15. | The net of a prism is shown on centimetre grid.    What is the volume of the prism?  ……………………………………………………………………………………………………  …………………………………………………………………………………………………… |
| 16. | Simplify  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 17. | Expand and simplify  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 18. | Simplify  …………………………………………………………………………………………………………….  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |

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| 19. | Three vertices *A*, *B* and *C* of a parallelogram are shown.  What are the coordinates of the fourth vertex, D?  ……………………………………… |
| 20. | Which of the five numbers below could replace *x* to make the statement  true.    …………………………………………………………………………………………………………….  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 21. | Jason has a bag containing 16 marbles which are red, blue or white.  There are 6 blue marbles and the probability of selecting a red marble is  What is the probability of selecting a white marble?  …………………………………………………………………………………………………………….  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 22. | When building his house Rob divided his budget into administrative, labour and materials costs. The labour costs were 45% of the total budget. Rob has started to draw a divided bar chart of the budget.  Complete the chart. |

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| 23. | The step graph shows car parking costs in the Safeguard Carpark.    On Monday Anna parked in the Safeguard Carpark at 9:15 am and left at 4:25 pm.  What was she charged for parking?  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 24. | John appeared on a talent quest, where he was awarded the following scores out of 10 by six judges.     |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Judge | Kylie | Jackie | Adam | Jo | Max | Nat | | Score | 6 | 4 | 8 | 5 | 7 | 5 |     Which of the mean, median or mode of the scores would be the highest, to use in his advertising?    …………………………………………………………………………………………………………….  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
| 25. | The dot plot below shows the number of children in 16 families.       |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  |  |  | O |  |  |  | |  |  | O | O | O |  | O | |  |  | O | O | O | O | O | |  | O | O | O | O | O | O | |  | 0 | 1 | 2 | 3 | 4 | 5 |       Number of Children  What is the interquartile range of the data?  …………………………………………………………………………………………………………….  ……………………………………………………………………………………………………………. |
|  | **End of Section 1**  **Do not continue to Section 2 until instructed.** |

**END OF SECTION 1**

Yearly Examination

**Advanced Mathematics**

**Section 2**

**75 marks**

Time allowed for this section is

1 hour and 30 minutes

This section has TWO parts

Part A – Fifty multiple-choice questions worth 1 mark each.

Mark your answers on the separate answer sheet provided at the end of the examination.

Part B – Longer answer questions worth a total of 25 marks.

Write all answers and working in the spaces provided on this examination paper.

Calculators may be used in this section.

Do not commence Section 2 until you are instructed to do so.

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|  | Use the multiple choice answer sheet at the end of the paper to record your answers.  Complete shade the bubble corresponding to the correct answer for each question. |
|  | Kerry’s normal rate of pay is $28 per hour for an eight hour shift and overtime at time and a half after that.  What would she be paid for a shift that lasts for 12 hours?  A. $336 B. $392 C. $448 D. $504 |
|  | Lynne and Daniel buy a TV cabinet, which has a cash price of $1 500, on a time payment plan. They pay $75 deposit and they then make 15 monthly payments of $140.  How much extra do they pay compared to the cash price?  A. $675 B. $1575 C. $1935 D. $2 175 |
|  | Pete invests $25 000 into a term deposit which pays 12% pa interest compounding quarterly.  How much interest does he earn in 18 months (to the nearest dollar)?  A. $1 133 B. $4 632 C. $4 851 D. $29 851 |
|  | Heath bought a new car for $45 000 in December 2009. He wants to sell it in December 2013.  If it depreciates at 7.5 % pa, how much could he expect to sell it for (to the nearest dollar)?  A. $12 056 B. $13 500 C. $31 500 D. $32 944 |
|  | Sally earns an annual income of $61 450 and has allowable deductions of $500.  The tax table below shows the tax payable.     |  |  | | --- | --- | | **Taxable income** | **Tax on this income** | | 0-$18,200 | Nil | | $18,201-$37,000 | 19c for each $1 over $18,200 | | $37,001-$80,000 | $3,572 plus 32.5c for each $1 over $37,000 | | $80,001-$180,000 | $17,547 plus 37c for each $1 over $80,000 | | $180,001 and over | $54,547 plus 45c for each $1 over $180,000 |   How much tax should Sally pay for the year (to the nearest dollar)?  A. $3 572 B. $ 7 784 C. $10 258 D. $11 356 |
|  | Angle A is acute and angle B is obtuse. Angle C is the sum of angle A and angle B.  Which type of angle is not possible for angle C?  A. Obtuse angle.  B. Reflex angle.  C. Revolution.  D. Straight angle. |
|  | *GH = HI = IJ* and *GJ* is a straight line segment.  What is the size of  A.  B.  C.  D. |
|  | Which triangles are congruent to one another?  A. Triangle X and Triangle Z. B. Triangle Y and Triangle X.  C. Triangle Y and Triangle Z. D. All of the Triangles. |
|  | Which two triangles are similar to one another?  A.  and  B.  and  C.  and  D.  and |
|  | A. 12 cm. B. 18 cm. C. 24 cm. D. 54 cm. |
|  | What is the volume of this solid (to 1d.p.)?    A. 2.0 m3 B. 4.5 m3 C. 6.1 m3 D. 8.1 m3 |
|  | Calculate the surface area of the solid shown.  A. 520 cm2  B. 580 cm2  C. 920 cm2  D. 1 040 cm2 |
|  | A solid, spherical, metal ball has a diameter of 12 cm.  What volume of metal was used to make the ball?    A. 50.3 cm3 B. 150.8 cm3 C. 904.8 cm3 D. 7 238.2 cm3 |
|  | What is the value of  in the triangle shown  (to the nearest degree)?  A. 35  B. 44  C. 46  D. 55 |
|  | At a time when the angle of elevation of the sun is 28o, a tree casts a shadow on level ground, which is 16 m long.  How tall is the tree?  A. 7.5 m  B. 8.5 m  C. 14.1 m  D. 39.6 m |
|  | Which of the following is a factor of    A.  B.  C.  D. |
|  | What is the equation of the line which passes through the points  A.  B.  C.  D. |
|  | What is the equation of the curve shown?  A.  B.  C.  D. |
|  | A.  B.  C.  D. 5 |
|  | What is the solution to  ?  A.  B.  C.  D. |
|  | The list below gives the possible outcomes when three coins are tossed.  HHH, HHT, HTH, HTT, THT, THH, TTH, TTT  T = a tail H = a head.  What is the probability of obtaining at least two tails?  A.  B.  C.  D. |
|  | An eight sided die has three red faces, two green faces, two yellow faces and one blue face.  When the die is rolled, what is the probability that it does **not** land on red.  A.  B.  C.  D. |
|  | **Questions 48 and 49 refer to the following.**  James is a footy coach and he drew up the frequency table below to analyse the points scored by the players in his team.     |  |  |  |  | | --- | --- | --- | --- | | Points Scored | Class Centre  *x* | Number of Players  (Frequency *)* |  | | 1 – 6 | 3.5 | 2 | 7 | | 7 – 12 | 9.5 | 4 | 38 | | 13 – 18 | 15.5 | 6 | 93 | | 19 – 24 | 21.5 | 4 | 86 | |  |  |  |  | |
|  | What would be a good estimate for the mean points scored by the players?  A. 12 B. 14 C. 16 D. 18 |
|  | Which of the following could be found exactly from the table ?  A. The median points scored by the players.  B. The mode of the points scored by the players.  C. The number of players that were included in the analysis.  D. The range of the points scored by the players. |
|  | Denise and Alistair both have casual jobs. They compare the number of hours they worked each week for 15 weeks.     |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Denise | | | | | Stem | Alistair | | | | | |  |  |  | 4 | 2 | 0 | 9 |  |  |  |  | |  |  | 4 | 3 | 0 | 1 | 5 | 8 |  |  |  | | 8 | 5 | 3 | 1 | 1 | 2 | 2 | 3 | 4 | 5 |  | |  |  | 5 | 3 | 2 | 3 | 3 | 5 | 5 | 5 | 8 | |  |  |  | 5 | 1 | 4 | 1 | 3 | 4 |  |  |   What were the interquatile ranges of their hours?  A. 20 and 16 respectively.  B. 21 and 35 respectively.  C. 23 and 33 respectively.  D. 35 and 43 respectively. |
|  | A credit card charges interest on outstanding balances at a rate of 0.06% per day, compounding daily. Lesley has an outstanding balance on her credit card of $400.00 for 21 days. How much interest will she be charged on the card?  A. $0.24 B. $5.07 C. $405.07 D. $959.83 |
|  | A.  B.  C.  D. |
|  | A.  B.  C.  D. |
|  | *BD* = *CD* and  Which is true?  A.  B.  C.  D. |
|  | *RS ||* *TU.*  What is the value of *w*?    A.  B.  C.  D. |
|  | is a triangle with *GH* = *HI.*  *HJ* is the perpendicular bisector of *GI.*  Which congruence test could **not** be used to prove that  and hence that  ?  A.  B.  C.  D. |
|  | In ∆ *ABC* and ∆ *DEC,* , *AC* = 24 cm, *CD =*18 cm and *DE* = 15 cm.    *AB* = ?  A. 12 cm. B. 15 cm. C. 18 cm. D. 20 cm. |
|  | The trophy for a football competition is a solid glass pyramid with a square base.  What is the surface area of the pyramid?  A.  B.  C.  D.  . |
|  | What is the size of  correct to the nearest degree?  A.  B.  C.  D. |
|  | Find the length of *BC* (correct to 1 decimal place).  A. 5.3 cm  B. 6.0 cm  C. 10.5 cm  D. 23.9 cm |
|  | The points  are plotted on a number plane.  Which is true about the lines *AB* and *CD*?  A.  B.  C.  D. |
|  | A.  B.  C.  D. |
|  | A.  B.  C.  D. |
|  | The graph of  is shown.  What are the coordinates of the point where this graph intersects the line with equation  A.  B.  C.  D. |
|  | Tegan is solving the pair of simultaneous equations below.    Depending on the value of *b*, how many ordered pairs could form the solution?  A. 0, 1 or 2.  B. 0 or 1 only  C. 1, or 2 only  D. 1, 2 or 3 |
|  | The graph below compares how an amount (*A*) changes over time (*t*).    Which of the following could not be the quantity A?  A. The Amount (*A*) of a loan as it is paid off with regular repayments.  B. The Amount (*A*) of water remaining in a tank as it is drained.  C. The Amount (*A*) of information recalled about the law after a talk by a legal expert.  D. The Amount (*A*) in a bank account when regular deposits are made. |
|  | What are the solutions to the equation  A.  B.  C.  D. |
|  | Which calculation could give the solutions to  A.  B.  C.  D. |
|  | Which graph below represents the equation  ?    A. B.    C. D. |
|  | The distance-time graph shows the trip by a sales rep, during his 8 hour working day.  He started from his base at the start of the day, travelled to town *A* and returned to his base at the end of the day.      What was his average driving speed, (i.e. not including stops), on his way to town *A?*  A. 44 km/h B. 60 km/h C. 80 km/h D. 100 km/h |
|  | Mitchell surveys all the students in Year 10 as part of a Maths project.  The results are summarised in the two way table below.     |  |  |  |  | | --- | --- | --- | --- | |  | Left handed | Right handed | Total | | Male | 18 | 36 | 54 | | Female | 20 | 32 | 52 | | Total | 38 | 68 |  |   What is the probability that a female chosen at random from Year 10 would be left handed?  A.  B.  C.  D. |
|  | The Venn Diagram below shows some attributes of 40 members of an extended family.    If a tea drinker is chosen at random, what is the probability that they are a football fan who doesn’t play an instrument?  A.  B.  C.  D. |
|  | When she had finished analysing her classes’ marks on a test, Ms Gilliam said that the results were skewed.  Which of the histograms might represent the classes’ results?  A. B. C. D. |
|  | The table below gives the means and standard deviations for the ages of the populations of three cities.     |  |  |  | | --- | --- | --- | | City | Mean Age | Standard Deviation | | Erina | 48.5 | 12.8 | | Jesmond | 29.4 | 10.4 | | Tuncurry | 58.6 | 6.4 |   Three students make the statements below.  Kayla : There are a lot of older people living in Tuncurry.  Lois : Jesmond has a lot of young families  Mary: Erina has a population which is mostly in their late-forties.  Whose statements would appear to be supported by the statistical analysis?  A. Kayla and Lois only. B. Kayla and Mary only.  C. Lois and Mary only. D. All three students. |
|  | There are four scatter plots shown below, which contain results of four experiments comparing the dosage of a vitamin (*D*) and frequency of cold symptoms (*F*).  Which graph appears to show there is a linear relationship, which has a negative gradient?    A. B.    C. D. |
|  | **End of Section 2 Part A**  **Continue on to Part B** |

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| **Section 2**  **Part B**  Longer Answer Section | | Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Class/Teacher\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
|  | Write all working and answers in the spaces provided on this examination paper.  Calculators are allowed for this section. | |

|  | | **Marks** |
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| 76. | (a) Simplify  leaving your answer as a surd.  ………………………………………………………………………………………….  ………………………………………………………………………………………….    …………………………………………………………………………………………. | **1** |
|  | (b) Express  as a surd fraction with a rational denominator.  ………………………………………………………………………………………….  ………………………………………………………………………………………….    ………………………………………………………………………………………. | **2** |
| 77. | In the diagram,   and |  |
|  | (a) Prove that  ………………………………………………………………………………………….  ………………………………………………………………………………………….    …………………………………………………………………………………………. | **2** |
|  | (b) Calculate the length of *TU*.  ………………………………………………………………………………………….  ………………………………………………………………………………………….    ………………………………………………………………………………………….  …………………………………………………………………………………………. | **1** |
| 78. | (a) A glass paperweight is pyramidal in shape, with a 5 cm square base and a vertical height of 6 cm.  Calculate the slant height *CD* and hence find the surface area of the pyramid.  ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | **2** |
|  | (b) A second paperweight is spherical and has a volume of 697 cm3.    Calculate the radius of the sphere.    ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | **1** |
| 79. | Simplify  by first factorising the numerator and denominator.  ………………………………………………………………………………………….  ………………………………………………………………………………………….  ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | **2** |
| 80. | *ABCE* is a parallelogram.  *F* is a point on *AE*.  *AE* is produced to *D* so that *DE* = *AF*.  Prove that  is also a parallelogram.  ………………………………………………………………………………………….  ………………………………………………………………………………………….  ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | **2** |
| 81. | (a) Leanne, Michelle and Kristy are located in a level paddock at the positions shown.    How far is Kristy from Michelle?  ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | **1** |
|  | b) A plane flies 720 m horizontally from *P* to *Q*.  The plane is observed from a radar post *R* which is on level ground.  When the plane is at *P* it is 1.62 km from *R* and when it is at *Q* it is 1.93 km from *R*.  From *R*, the angle of elevation of the plane at *Q* is 54o.    From *R*, what was the angle of elevation when the plane was at *P*?  ………………………………………………………………………………………….  ………………………………………………………………………………………….  …………………………………………………………………………………………. | **2** |
| 82. | Show that triangle *ABC* above is a right isosceles triangle.  …………………………………………………………………………………………  …………………………………………………………………………………………  …………………………………………………………………………………………  …………………………………………………………………………………………  …………………………………………………………………………………………  ………………………………………………………………………………………… | **3** |
| 83. | (a) Solve .  …………………………………………………………………………………………  …………………………………………………………………………………………  ………………………………………………………………………………………… | **1** |
|  | (b) Give the solutions to , correct to two decimal places.  …………………………………………………………………………………………  …………………………………………………………………………………………  ………………………………………………………………………………………… | **1** |
| 84. | Ahmed has three tickets to see Sinead Burgess, and plans to go and take two friends.  Unfortunately he has four friends who would like to go to the concert.  He writes the names of the four friends on cards and draws two out at random. |  |
|  | (a) Complete the tree diagram which has been started, to show the possible pairs of two friends who could go with Ahmed. | **1** |
|  | (b) What is the probability that Carl and Dainelle are the two to accompany Ahmed?  …………………………………………………………………………………………  ………………………………………………………………………………………… | **1** |
| 85. | The Sapo restaurant keeps records of the size of groups dining there over a week.     |  |  | | --- | --- | | Size of group | Frequency | | 1 | 6 | | 2 | 25 | | 3 | 12 | | 4 | 30 | | 5 | 16 | | 6 | 12 | | 7 | 5 | | 8 | 10 | |  |
|  | 1. Calculate the mean group size.   …………………………………………………………………………………………  ………………………………………………………………………………………… | **1** |
|  | 1. What is the (population) standard deviation of the data.   …………………………………………………………………………………………  ………………………………………………………………………………………… | **1** |
|  | **End of Examination** |  |

**End of Examination**

High School

Yearly Exam

Advanced Mathematics Course

Multiple Choice Section Answer Sheet

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

26. A B C D

27. A B C D

28. A B C D

29. A B C D

30. A B C D

31. A B C D

32. A B C D

33. A B C D

34. A B C D

35. A B C D

36. A B C D

37. A B C D

38. A B C D

39. A B C D

40. A B C D

41. A B C D

42. A B C D

43. A B C D

44. A B C D

45. A B C D

46. A B C D

47. A B C D

48. A B C D

49. A B C D

50. A B C D

51. A B C D

52. A B C D

53. A B C D

54. A B C D

55. A B C D

56. A B C D

57. A B C D

58. A B C D

59. A B C D

60. A B C D

61. A B C D

62. A B C D

63. A B C D

64. A B C D

65. A B C D

66. A B C D

67. A B C D

68. A B C D

69. A B C D

70. A B C D

71. A B C D

72. A B C D

73. A B C D

74. A B C D

75. A B C D