Name : _____

# YEAR 9 YEARLY EXAMINATION 2009

## PAPER B
## SECTION 1 : NON CALCULATOR (25 marks)

**Instructions:**

Write the answer to Questions 1 – 25 in the answer column.
Calculators are not to be used.
Do not start section 2 until instructed.
You have 30 minutes for this section.

| Question | Answer |
|---|---|
| 1. Evaluate $15-38+7$ | |
| 2. In the 1862 Hill End Gold Rush, 20 thousand miners extracted 5 million dollars worth of gold. What was the average value of gold found by each miner ? | |
| 3. Find $x$ if $4\sqrt{2}=\sqrt{x}$ | |
| 4. If $342\div 18=19$ what is the value of $342\div 0.18$ ? | |
| 5. Express 0.00304 in scientific notation. | |
| 6. Add $\frac{3}{100}$ to 8.472 | |
| 7. Sally is paid \$12.60 per hour. How much is she paid for working from 11am to 3 pm at time and a half rates ? | |
| 8. Find the size of each interior angle of a regular hexagon ? | |

| | |
|---|---|
| 9. $M(-1,3)$ is the midpoint of the interval AB. If the coordinates of A are $(3,2)$ find the coordinates of B. | |
| 10. Express $\frac{3}{7}$ as a decimal correct to 3 decimal places | |
| 11. Jamie and Peta share \$600 so that Jamie has \$120 more than Peta. What amount will Jamie receive ? | |
| 12. Solve $a+18=4a-57$ | |
| 13. Martin was asked to double a number, then subtract 10. Instead he added 10 to the number then doubled it and got the answer 100.<br><br>What should his answer have been ? | |
| 14. What is the size of the angle between the hands of a clock at half past eight ? | |
| 15. Find the last digit of the number $7^{31}$. | |
| 16. Evaluate $16^{\frac{3}{4}}$. | |

| | |
|---|---|
| 17. Evaluate $\left(\frac{1}{3}\right)^{-2}$ | |
| 18. Between which two integers does $\sqrt{200}$ lie ? | |
| 19. Find the surface area of a rectangular prism with dimensions 10 cm , 5 cm and 4 cm. | |
| 20. If $x = 3$ what is the value of $4a^2$ ? | |
| 21. Mark pays \$1.50 for each share in a company. How much must he sell the shares for to make a profit of 20% ? | |
| 22. $m$ is a whole number. What values can $m$ take if the fraction $\frac{17}{m}$ has a value between 2 and 3 ? | |
| 23. Complete the next two numbers in the pattern<br>3 , 4 , 8 , 17 , 33 , ___ , ___ | |
| 24. The area of a rhombus is 54 square centimetres. One of the diagonals is three times as long as the other. Find the lengths of both diagonals. | |
| 25. Find the value of $\Delta$ if<br>$57 \times 29 + 57 \times 11 = 57 \times (50 - \Delta)$ | |

Name : _____

# YEAR 9 YEARLY EXAMINATION
# MATHEMATICS
## 2009

## PAPER B
### SECTION 2 : Multiple Choice

**Instructions:**

Do not start section 2 until instructed.
You have 35 minutes for this section.
Circle the letter on the answer sheet provided that best answers the question

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1. Convert 0·0025 cubic metres to cubic centimetres.

(A) 0·25 (B) 2·5 (C) 25 (D) 2500

---

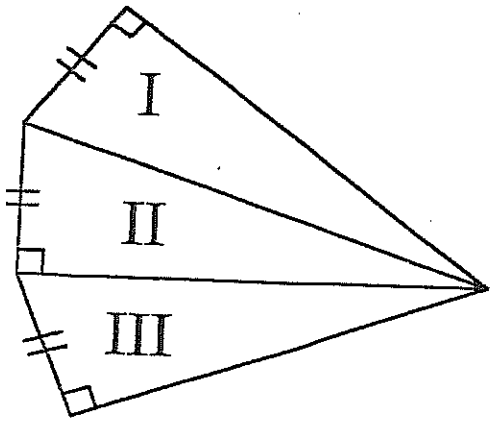
2. At Springfield High School, 30% of the students are seniors and 70% are juniors. The school disco was attended by 20% of the seniors and 30% of the juniors.

What percentage of all students attended the disco?

(A) 23% (B) 25% (C) 27% (D) 50%

---

3.




Which triangles are congruent?

(A) I and II only
(B) I and III only
(C) II and III only
(D) I, II and III

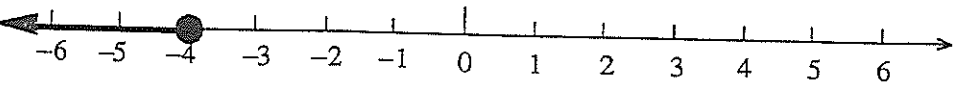
---

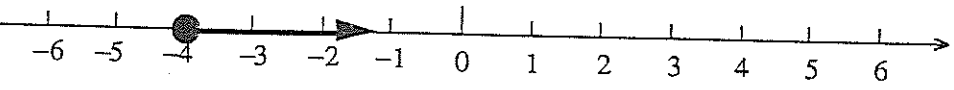
4. Simplify $\left(\frac{t^6}{t^2}\right)^2$

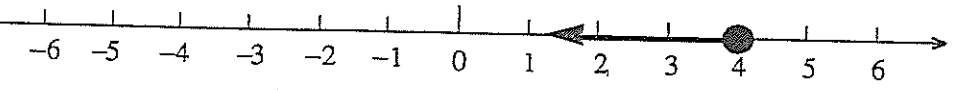
(A) $t^6$ (B) $t^8$ (C) $t^9$ (D) $t^{16}$

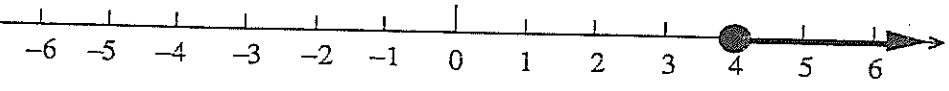
---

5. The solution to $5 - x \leq 9$ is represented on the number line as:

(A)



(B)



(C)



(D)



6.

A tap is dripping at the rate of 5 mL per minute. How many litres would this amount to in one year (365 days)?

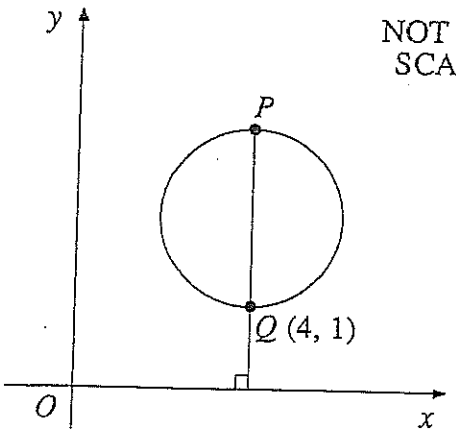
(A) $5 \times 60 \times 24 \times 365 \times 1000$

(B) $\dfrac{5 \times 1000}{60 \times 24 \times 365}$

(C) $\dfrac{60 \times 24 \times 365}{5 \times 1000}$

(D) $\dfrac{5 \times 60 \times 24 \times 365}{1000}$

7.




NOT TO SCALE

This circle has radius 2 units. $PQ$ passes through the centre of the circle and is perpendicular to the $x$ axis.

$Q$ is the point (4, 1). $P$ is the point

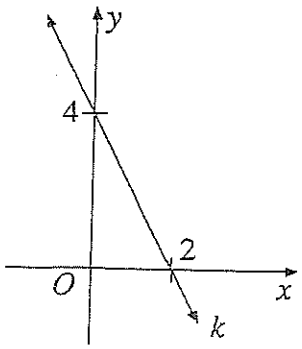
(A) (4, 3)

(B) (4, 5)

(C) (6, 1)

(D) (8, 1)

8.




The equation of line $k$ is

(A) $y = -2x + 2$

(B) $y = -2x + 4$

(C) $y = 2x + 2$

(D) $y = 2x + 4$

9. Fully simplify $3\sqrt{2} + \sqrt{8}$

(A) $5\sqrt{2}$ (B) $7\sqrt{2}$ (C) $3\sqrt{10}$ (D) $4\sqrt{10}$

10. $x^{\frac{4}{3}}$ is equivalent to

(A) $\sqrt[4]{x^3}$ (B) $\sqrt[3]{x^4}$ (C) $\frac{4}{x^3}$ (D) $\frac{x^4}{3}$

11. The equation of the line through $(-3, 4)$ parallel to the $y$ axis is

(A) $x = -3$ (B) $y = -3$ (C) $x = 4$ (D) $y = 4$

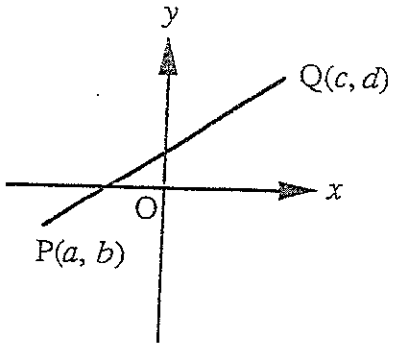
12. If $\left(\frac{3}{4}\right)^x = \frac{16}{9}$ find the value of $x$.

(A) $-2$ (B) $-\frac{1}{2}$ (C) $\frac{1}{2}$ (D) 2

13. $\left(\sqrt{5}-1\right)^2 =$

(A) 4 (B) 6 (C) $6-2\sqrt{5}$ (D) $6-\sqrt{10}$

14.




The midpoint of PQ is

(A) $(\frac{a+b}{2}, \frac{c+d}{2})$

(B) $(\frac{c-a}{2}, \frac{d-b}{2})$

(C) $(\frac{a-c}{2}, \frac{b-d}{2})$

(D) $(\frac{a+c}{2}, \frac{b+d}{2})$

15. $10^{-2} =$

(A) $\frac{1}{100}$ (B) $\frac{1}{20}$ (C) $-20$ (D) $-100$

16. Simplify $\frac{12a - 4}{4}$

(A) $12a$ (B) $12a - 1$ (C) $3a - 1$ (D) $3a - 4$

17. What is the $y$ intercept of the line $5x - 2y - 10 = 0$?

(A) $-10$ (B) $-5$ (C) 5 (D) 10

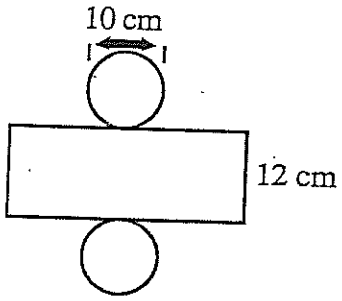
18. How many whole numbers from 10 to 99 have the sum of their digits equal to 9?

(A) 9 (B) 10 (C) 18 (D) 90

19. $x \div 3 \times y + z$ is equal to

(A) $\frac{x}{3y} + z$ (B) $\frac{xy}{3} + z$ (C) $\frac{x}{3}(y + z)$ (D) $\frac{x}{3y + z}$

20.



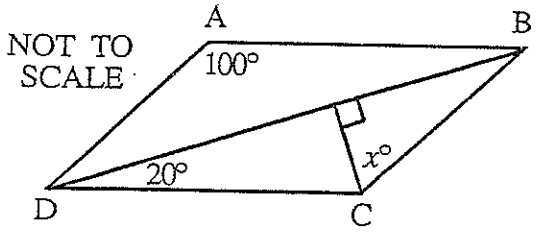

This net is used to form a cylinder.

Its volume is closest to

(A) 377 $cm^3$ (B) 534 $cm^3$

(C) 942 $cm^3$ (D) 3770 $cm^3$

21.



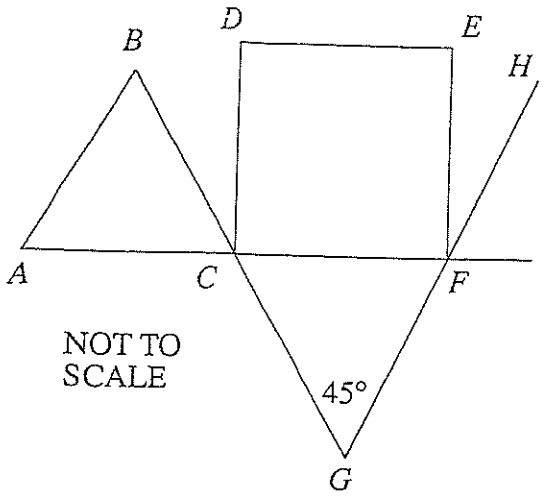

ABCD is a parallelogram.

What is the value of $x$?

(A) 30 (B) 50

(C) 60 (D) 70

22.




$ABC$ is an equilateral triangle.

$CDEF$ is a square.

$BCG$, $ACF$, and $GFH$ are straight lines.

$\angle CGF = 45°$.

The size of $\angle EFH$ is

(A) 15°

(B) $22\frac{1}{2}°$

(C) 30°

(D) 45°

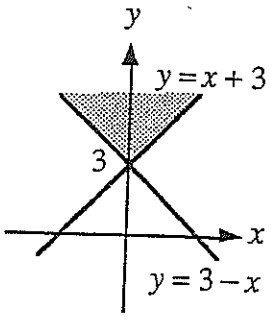
23. Simplify $\frac{\sqrt{45}}{15}$

(A) $\sqrt{3}$ (B) $\frac{\sqrt{3}}{3}$ (C) $\frac{\sqrt{5}}{5}$ (D) $\frac{3\sqrt{5}}{5}$

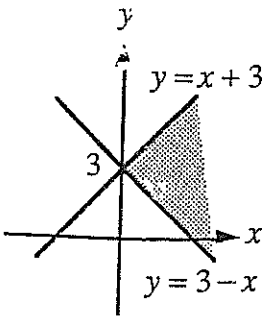
24. Which of the following represents the region that satisfies both

$y \geq x + 3$ and $y \leq 3 - x$?

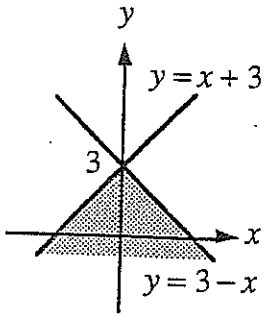
(A)



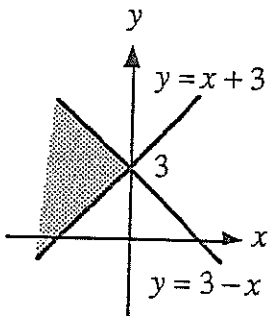

(B)




(C)




(D)




25. 'Six more than the square root of a number is four less than twice the square of the number'

can be represented by

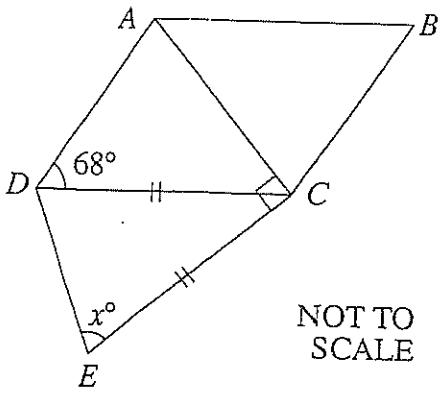
(A) $6 + \sqrt{n} = 2n^2 - 4$

(B) $\sqrt{6 + n} = 2n^2 - 4$

(C) $6 + \sqrt{n} = 2(n - 4)^2$

(D) $\sqrt{6 + n} = 2(n - 4)^2$

**26.**




NOT TO SCALE

$ABCD$ is a rhombus.

$DC = EC$.

$\angle ADC = 68°$ and $\angle ACE = 90°$.

The value of $x$ is

(A) 22

(B) 68

(C) 73

(D) 79

**27.** Make $n$ the subject of $nc = n + 50$.

(A) $n = 50 - c$ (B) $n = 50 - c + 1$ (C) $n = \frac{c + 50}{c}$ (D) $n = \frac{50}{c - 1}$

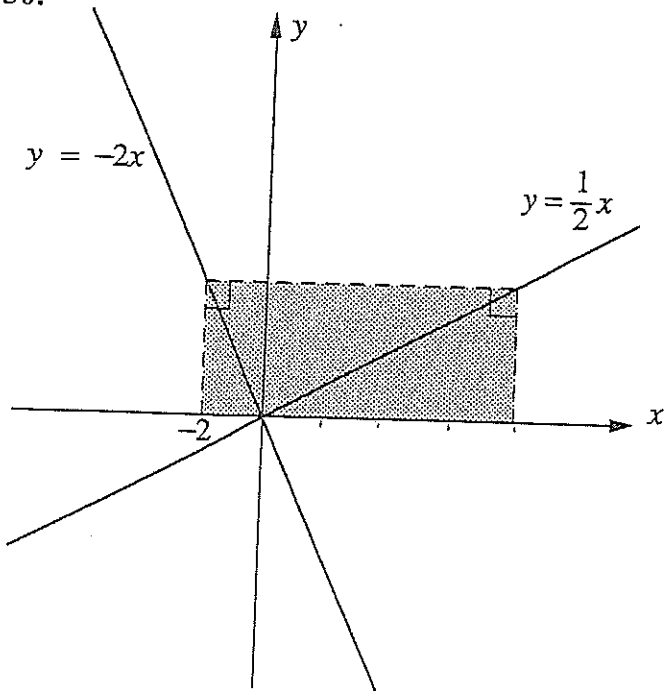
**28.** If $\sqrt{12} + \sqrt{3} = \sqrt{b}$ then

(A) $b = \sqrt{15}$ (B) $b = 3\sqrt{3}$ (C) $b = 15$ (D) $b = 27$

**29.** Which expression is equivalent to $4x^{-1}$?

(A) $-4x$ (B) $\frac{1}{4x}$ (C) $\frac{x}{4}$ (D) $\frac{4}{x}$

**30.**




Calculate the shaded area (in square units).

(A) 16 (B) 24

(C) 32 (D) 40

Name : _____

SYDNEY TECHNICAL HIGH SCHOOL

YEAR 9 YEARLY EXAMINATION 2009

# MATHEMATICS

**PAPER B**

**SECTION 2 : Multiple Choice Answer Sheet** ☺

**Instructions:**

Do not start section 2 until instructed.
You have 35 minutes for this section.
Circle the letter that best answers the question.

| | | | | |
|---|---|---|---|---|
| 1. | A | B | C | D |
| 2. | A | B | C | D |
| 3. | A | B | C | D |
| 4. | A | B | C | D |
| 5. | A | B | C | D |
| 6. | A | B | C | D |
| 7. | A | B | C | D |
| 8. | A | B | C | D |
| 9. | A | B | C | D |
| 10. | A | B | C | D |
| 11. | A | B | C | D |
| 12. | A | B | C | D |
| 13. | A | B | C | D |
| 14. | A | B | C | D |
| 15. | A | B | C | D |
| 16. | A | B | C | D |
| 17. | A | B | C | D |
| 18. | A | B | C | D |
| 19. | A | B | C | D |
| 20. | A | B | C | D |
| 21. | A | B | C | D |
| 22. | A | B | C | D |
| 23. | A | B | C | D |
| 24. | A | B | C | D |
| 25. | A | B | C | D |
| 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 |

Name : _____

# YEAR 9 YEARLY EXAMINATION 2009

## PAPER B
## SECTION 1 : NON CALCULATOR (25 marks)

**Instructions:**

Write the answer to Questions 1 – 25 in the answer column.
Calculators are not to be used.
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| Question | Answer |
|---|---|
| 1. Evaluate $15-38+7$ | $-16$ |
| 2. In the 1862 Hill End Gold Rush, 20 thousand miners extracted 5 million dollars worth of gold. What was the average value of gold found by each miner ? | $\$250$ |
| 3. Find $x$ if $4\sqrt{2}=\sqrt{x}$ | $x=32$ |
| 4. If $342\div18=19$ what is the value of $342\div0.18$ ? | 1900 |
| 5. Express 0.00304 in scientific notation. | $3.04\times10^{-3}$ |
| 6. Add $\frac{3}{100}$ to 8.472 | 8.502 |
| 7. Sally is paid \$12.60 per hour. How much is she paid for working from 11am to 3 pm at time and a half rates ? | $\$75.60$ |
| 8. Find the size of each interior angle of a regular hexagon ? | $120^\circ$ |

| | |
|---|---|
| 9. $M(-1,3)$ is the midpoint of the interval AB. If the coordinates of A are $(3,2)$ find the coordinates of B. | $(-5,4)$ |
| 10. Express $\frac{3}{7}$ as a decimal correct to 3 decimal places | $0.429$ |
| 11. Jamie and Peta share \$600 so that Jamie has \$120 more than Peta. What amount will Jamie receive ? | \$360 |
| 12. Solve $a+18=4a-57$ | $a = 25$ |
| 13. Martin was asked to double a number, then subtract 10. Instead he added 10 to the number then doubled it and got the answer 100.<br>What should his answer have been ? | 70 |
| 14. What is the size of the angle between the hands of a clock at half past eight ? | $75^\circ$ |
| 15. Find the last digit of the number $7^{31}$. | 3 |
| 16. Evaluate $16^{\frac{3}{4}}$. | 8 |

| | |
|---|---|
| 17. Evaluate $\left(\frac{1}{3}\right)^{-2}$ | 9 |
| 18. Between which two integers does $\sqrt{200}$ lie ? | 14, 15 |
| 19. Find the surface area of a rectangular prism with dimensions 10 cm , 5 cm and 4 cm. | 220 $cm^2$ |
| 20. If $x = 3$ what is the value of $4a^2$ ? | 36 |
| 21. Mark pays \$1.50 for each share in a company. How much must he sell the shares for to make a profit of 20% ? | \$1.80 |
| 22. $m$ is a whole number. What values can $m$ take if the fraction $\frac{17}{m}$ has a value between 2 and 3 ? | 6, 7, 8<br>must have all. |
| 23. Complete the next two numbers in the pattern<br>3 , 4 , 8 , 17 , 33 , ___ , ___ | 58, 94 |
| 24. The area of a rhombus is 54 square centimetres. One of the diagonals is three times as long as the other. Find the lengths of both diagonals. | 6 cm, 18 cm |
| 25. Find the value of $\Delta$ if<br>$57 \times 29 + 57 \times 11 = 57 \times (50 - \Delta)$ | 10 |

Name : SOLUTIONS

SYDNEY TECHNICAL HIGH SCHOOL

YEAR 9 YEARLY EXAMINATION 2009

# MATHEMATICS

**PAPER B**

**SECTION 2 : Multiple Choice Answer Sheet** ☺

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You have 35 minutes for this section.
Circle the letter that best answers the question.

| | | | | |
|---|---|---|---|---|
| 1. | A | B | C | **D** |
| 2. | A | B | **C** | D |
| 3. | **A** | B | C | D |
| 4. | A | **B** | C | D |
| 5. | A | **B** | C | D |
| 6. | A | B | C | **D** |
| 7. | A | **B** | C | D |
| 8. | A | **B** | C | D |
| 9. | **A** | B | C | D |
| 10. | A | **B** | C | D |
| 11. | **A** | B | C | D |
| 12. | **A** | B | C | D |
| 13. | A | B | **C** | D |
| 14. | A | B | C | **D** |
| 15. | **A** | B | C | D |
| 16. | A | B | **C** | D |
| 17. | A | **B** | C | D |
| 18. | **A** | B | C | D |
| 19. | A | **B** | C | D |
| 20. | A | B | **C** | D |
| 21. | **A** | B | C | D |
| 22. | **A** | B | C | D |
| 23. | A | B | **C** | D |
| 24. | A | B | C | **D** |
| 25. | **A** | B | C | D |
| 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** |