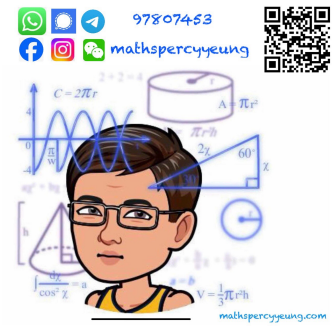
18-19 F.3
1st TERM UT 2
MATH
MC



2018 – 2019
Form 3 First Term Uniform Test 2

MATHEMATICS

14th December, 2018
Time Allowed: 30 minutes

INSTRUCTIONS

1. Read carefully the instructions on the Answer Sheet. After the announcement of the start of the examination, you should insert the information required in the spaces provided.

2. When told to open this book, you should check that all the questions are there. Look for the words '**END OF PAPER**' after the last question.

3. All questions carry equal marks.

4. **ANSWER ALL QUESTIONS**. You should use an HB pencil to mark all your answers on the Answer Sheet, so that wrong marks can be completely erased with a clean rubber. You must mark the answers clearly; otherwise you will lose marks if the answers cannot be captured.

5. You should mark only **ONE** answer for each question. If you mark more than one answer, you will receive **NO MARKS** for that question.

6. No marks will be deducted for wrong answers.

7. The diagrams in this paper are not necessarily drawn to scale.

8. Calculators with 'H.K.E.A.A. Approved' can be used.

Choose the best answer for each question.

1. If $p = 2(q - 4r)$, then $q =$

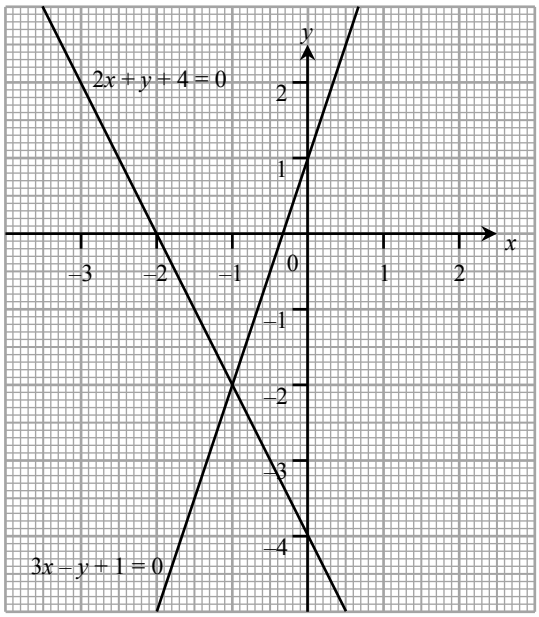
A. $\frac{p}{2} + 4r$.

B. $\frac{p}{2} - 4r$.

C. $4r - \frac{p}{2}$.

D. $\frac{p + 4r}{2}$.

2. Using the figure below, solve $\begin{cases} 3x - y + 1 = 0 \\ 2x + y + 4 = 0 \end{cases}$ graphically.



A. (–2, 0)

B. (0, 1)

C. (–1, –2)

D. (0, –4)

3. If $\begin{cases} y = x - 3 \\ 2x - y = 5 \end{cases}$, then $x =$

A. –1.

B. 0.

C. 1.

D. 2.

4. If $a \neq 0$, which of the following must be true?

A. $a^0 = 0$

B. $(a^{-1})^4 = \frac{1}{a^4}$

C. $a^{-1} \times a^{-2} = a^2$

D. $\frac{a^3}{a^{-5}} = \frac{1}{a^8}$

5. $\frac{m^{-7}}{m^{-2} \times m^{-3}} =$

A. $\frac{1}{m^2}$.

B. $\frac{1}{m^{13}}$.

C. $-\frac{1}{m^2}$.

D. m^2.

6. 608 740 000 =

A. 6.08×10^8 (cor. to 3 sig. fig.).

B. 6.09×10^8 (cor. to 3 sig. fig.).

C. 6.09×10^9 (cor. to 3 sig. fig.).

D. 6.09×10^{-8} (cor. to 3 sig. fig.).

7. What is the place value of the digit '0' in the number 10111_2?

A. 0
B. 2^3
C. 2^4
D. 1000

8. $D000C2_{16} =$

A. $14\times16^6+13\times16^2+2\times16$
B. $14\times16^5+13\times16+2$
C. $13\times16^6+12\times16^2+2\times16$
D. $13\times16^5+12\times16+2$

9. Factorize $z^2 - 13z + 22$.

A. $(z-1)(z-22)$
B. $(z+1)(z+22)$
C. $(z-2)(z-11)$
D. $(z+2)(z+11)$

10. Factorize $8x^2 + 2xy - y^2$.

A. $(x-y)(8x+y)$
B. $(x+y)(8x-y)$
C. $(2x-y)(4x+y)$
D. $(2x+y)(4x-y)$

11. $64 - y^3 =$

A. $(4-y)(16+y^2)$.
B. $(4-y)(16+4y+y^2)$.
C. $(4-y)(16+8y+y^2)$.
D. $(4+y)(16-4y-y^2)$.

12. The number of elderly people in a district is 5000 now. If this number increases at a constant rate of 10% per year, find the number of elderly people in the district after 3 years.

A. $5000(1+3\times10\%)$
B. $3\times5000(1+10\%)$
C. $5000(1+10\%)^3$
D. $5000(1+3\times10\%)^3$

13. Zoe deposits \$20 000 in a bank at a simple interest rate of 2% p.a. How long will it take for her to receive an interest of \$10 000?

A. 3 months
B. 25 months
C. 3 years
D. 25 years

14. William deposits \$25 000 in a bank at an interest rate of 8% p.a. compounded yearly. Find the amount received after 3 years, correct to the nearest \$10.

A. \$28 120
B. \$31 490
C. \$31 630
D. \$39 670

15. The table below shows the salaries tax rate:

Net chargeable income	Tax rate
On the first \$40 000	2%
On the next \$40 000	7%
On the next \$40 000	12%
Remainder	17%

The net chargeable income of Dicky is \$86 000. His salaries tax payable is

A. \$1720.
B. \$4020.
C. \$4320.
D. \$10 320.

16. A letter is chosen at random from the word 'PROBABILITY', find the probability of getting a 'Q'.

A. 0
B. $\frac{1}{11}$
C. $\frac{2}{11}$
D. 1

17. When tossing two fair coins, find the probability of getting 2 tails.

A. 0
B. $\frac{1}{4}$
C. $\frac{1}{2}$
D. 1

18. When a drawing pin is thrown, the pin may land point-up or point-down.

point-up

point-down

The following table records the results after the drawing pin is thrown many times.

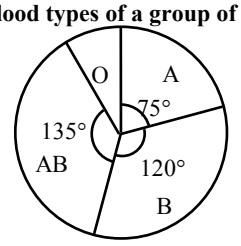
	Point-up	Point-down
Frequency	62	38

In a throw of the drawing pin, find the experimental probability that the drawing pin lands point-down.

A. $\frac{1}{2}$
B. $\frac{1}{4}$
C. $\frac{19}{50}$
D. $\frac{31}{50}$

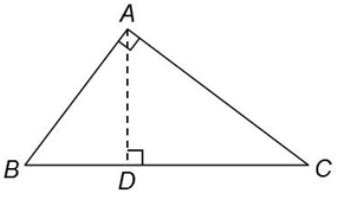
19. The pie chart shows the blood types of a group of students. If a student is randomly chosen from the group, find the probability that the student is of blood type A or B.

The blood types of a group of students



A. $\frac{3}{8}$
B. $\frac{9}{22}$
C. $\frac{13}{24}$
D. $\frac{13}{22}$

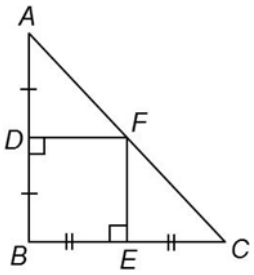
20. The figure shows a right-angled triangle ABC. D is a point on BC such that $AD \perp BC$. Which of the following line segments is/are altitude(s) of $\triangle ABC$?



I. AB
II. AC
III. AD

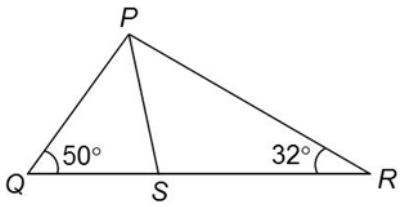
A. I only
B. II only
C. III only
D. I, II and III

21. In the figure, ADB, BEC and AFC are straight lines. F is



A. the circumcentre of $\triangle ABC$.
B. the incentre of $\triangle ABC$.
C. the centroid of $\triangle ABC$.
D. the orthocentre of $\triangle ABC$.

22. In the figure, QSR is a straight line. If PS is the angle bisector of $\angle QPR$, then $\angle QPS =$



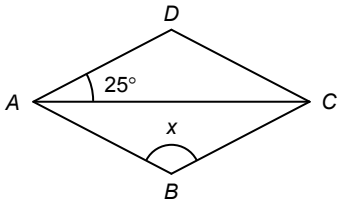
A. 41°
B. 45°
C. 49°
D. 50°

23. The lengths of three line segments are shown in each of the following cases. In which of the following cases can a triangle be formed by the three line segments?

I. 2 cm, 3 cm, 4 cm
II. 6 cm, 6 cm, 8 cm
III. 4 cm, 10 cm, 5 cm

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

24. In the figure, $ABCD$ is a rhombus. Find x.



A. 120°
B. 125°
C. 130°
D. 135°

End of Paper