**FMA Team Mathematics Competition - Final**

**YEAR 10 – 2018**

Y10/1 Simplify 5x – 3(x – 2y)

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Y10/2

12 – 3 x 4 – 2 (7 – 3) + 15 =

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Y10/3 Evaluate

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Y10/4

8 men on a desert island are able to survive for 12 days with 6 litres of water. How long could 4 men survive on 5 litres of water?

Y10/5 Solve for x

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Y10/6 Mrs Adams bought some sweets and left them on the table. Mr Adams came along and took of them. Later son Paul took of those that were left. Even later daughter Sue took of the remainder. When Mrs Adams came along there were only 27 sweets left. How many did she buy?

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Y10/7 Solve for x

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Y10/8

Susan conducted a survey of favorite fruits of students in her school. The results are displayed in the table. The number of students who like mango is 20 more than apple. How many students took part in the survey?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Fruit** | Apple | Pineapple | Grape | Mango |
| **Percentage of Students** | 25% | 14% | 31% | 30% |

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Y10/9 Michelle is prescribed 1 gram of medicine lincomycin by the doctor which is to be administrated via an injection. If lincomycin comes in stock solution containing 125 grams per 2 mL of stock solution, what is the volume of the stock solution required for Micelle’s injection?

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Y10/10 Find the equation of the line passing through the points (-2,3) and (1,4). State the equation of the line in general form (ax + by + c = 0)

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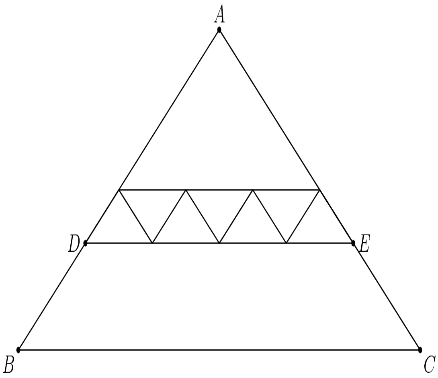
Y10/11 A sphere and a closed cylinder have the same radius. The height of the cylinder is one third of the radius. What is the ratio of the volume of the cylinder to the volume of the sphere?

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Y10/12

Sandy uploaded a video to a website where viewers can vote that they like or dislike a video. Each video begins with a score of 0, and the score increases by 1 for each like and decreases by 1 for each dislike vote. At one-point Sandy saw that his video had a score of 90, and that 65% of the vote cast on his video were like votes. How many votes had been cast on Sandy’s video at that point?

Y10/13 All of the triangles in the diagram below are similar to isosceles triangle $ABC$, in which $AB=AC$. Each of the 7 smallest triangles has area 1, and $\triangle ABC$ has area 40. What is the area of trapezoid $DBCE$?



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Y10/14 Zack’s mother baked a pie. She cut of the pie and gave it to their two neighbors. When Zack reached home after school and ate of the left-over pie. When Zack’s older brother reached home after soccer practice he had of the remaining pie. The rest of the pie was equally shared by Zack’s parents after Dinner. What fraction of the original pie did the parents eat? (Give answer in lowest fraction)

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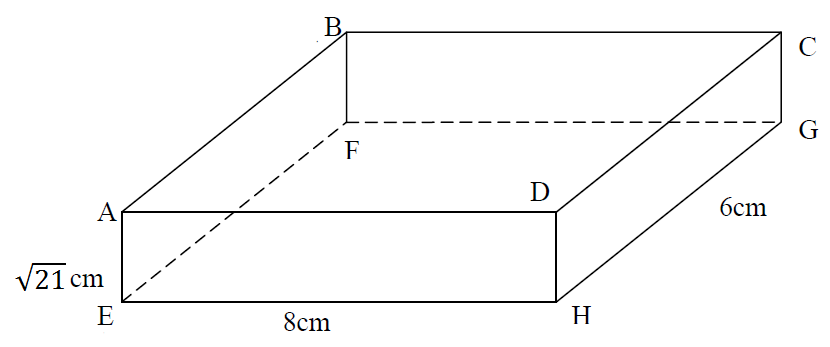
Y10/15 Write the next term in the sequence

{2a – 5b, a – 2b, b, -a + 4b, \_\_\_\_,…}

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Y10/16

The rectangle box has dimensions as shown. What is the length of



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Y10/17 The scale on a map is **1: 25 000.**

If the distance between two landmarks on the map is 5.5 cm, find the actual distance on the groundbetween the two landmarks. (Give your answer in km)

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Y10/18 Simplify x ÷

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Y10/19 Find the probability of drawing a king or a heart when selecting a card from a deck of 52 playing cards.

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Y10/20 Two hamburgers and a packet of chips cost $8.20, while 1 hamburger and 2 packets of chips cost $5.90. Find the cost of a packet of chips and a hamburger.

**FIJI MATHEMATICS ASSOCIATION**

**ZONE**

**RESULT SHEET YEAR 10: 2018**

Name of School: ……………………………………………..

Name of Marker: …………………………………………….

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Answers** | **+100** | **-100** | **Cumulative Score** |
| 1 | 2(x + 3y) |  |  |  |
| 2 | 7 |  |  |  |
| 3 | 36 |  |  |  |
| 4 | 20 days |  |  |  |
| 5 | - |  |  |  |
| 6 | 64 |  |  |  |
| 7 | x = 4 |  |  |  |
| 8 | 400 |  |  |  |
| 9 | 16 mL |  |  |  |
| 10 | x – 3y + 11 = 0  (accept ans in this form only) |  |  |  |
| 11 |  |  |  |  |
| 12 | 300 |  |  |  |
| 13 | 24 |  |  |  |
| 14 |  |  |  |  |
| 15 | -2a +7b or 7b -2a |  |  |  |
| 16 | 11 cm |  |  |  |
| 17 | 1.375 km |  |  |  |
| 18 |  |  |  |  |
| 19 |  |  |  |  |
| 20 | Hamburger -$3.50  Chips - $1.20 |  |  |  |