

**TUTORIAL ANSWERS (correct answers are BOLDED):**

**Question 1**

Which order shows the decimal numbers written from least to greatest?

- a) 1.018, 1.014, 0.535, 0.472, 0.47
- b) 0.472, 0.47, 0.535, 1.018, 1.014
- c) 0.47, 0.472, 0.535, 1.018, 1.014
- d) 0.535, 1.014, 1.018, 0.47, 0.472
- e) **0.47, 0.472, 0.535, 1.014, 1.018**

**Question 2**

What is 12 573 in expanded form using powers of ten?

- a)  **$1 \times 10^4 + 2 \times 10^3 + 5 \times 10^2 + 7 \times 10 + 3$**
- b)  $1 \times 10^5 + 2 \times 10^4 + 5 \times 10^3 + 7 \times 10^2 + 3 \times 10$
- c)  $10\,000 + 2000 + 500 + 70 + 3$
- d)  $1 \times 10^4 + 2 \times 10^2 + 5 \times 10^3 + 7 \times 10 + 3$
- e)  $1 \times 10^2 + 2 \times 10 + 5 \times 10^4 + 7 \times 10^3 + 3$

**Question 3**

Which is the greatest common factor of 24 and 32?

- a) 32
- b) **8**
- c) 4
- d) 56
- e) 96

**Question 4**

In a survey of 30 teachers all but 6 of them take public transit to get to school. What percent of the teachers take public transit?

- a) 100%
- b) **80%**
- c) 60%
- d) 20%
- e) 24%

### Question 5

Which sum is greater than 1?

- a)  $\frac{1}{5} + \frac{2}{7}$
- b)  $\frac{3}{8} + \frac{1}{5}$
- c)  $\frac{2}{3} + \frac{3}{5}$
- d)  $\frac{1}{2} + \frac{1}{5}$
- e)  $\frac{1}{5} + \frac{2}{3}$

### Question 6

What is the value of the expression:  $-4^2 + (-6)^3$  ?

- a) 200
- b) 208
- c) -26
- d) -10
- e) **-232**

### Question 7

The ratio of domestic cars to foreign made cars in the parking lot is 5 to 8. There are 20 domestic cars. What is the total number of cars in the lot?

- a) 33
- b) 32
- c) **52**
- d) 13
- e) 12

### Question 8

Jessica requires 225 m of cord to outline her garden. The cord is sold by the roll. Each roll contains 725 cm. How many rolls should she buy?

- a) 3
- b) 1
- c) 31
- d) **32**
- e) 5

### Question 9

A storage unit for lounge cushions is in the shape of a rectangular prism. The dimensions are 190cm long by 75cm wide by 75cm high. What is the volume of the unit in  $\text{m}^3$ ?

- a) **1.068 750  $\text{m}^3$**
- b) 68 250  $\text{m}^3$
- c) 340  $\text{m}^3$
- d) 0.068 250  $\text{m}^3$
- e) 1 068 750  $\text{m}^3$

### Question 10

A wooden storage bin is in the shape of a rectangular prism. Its base dimensions are 125 cm by 245 cm and its height is 110 cm. The entire outside of the bin is stained to protect it from the rain and the snow. What is the surface area to be stained in  $\text{m}^2$ ? (8M2)

- a) 7.1325  $\text{m}^2$
- b) 142 650  $\text{m}^2$
- c) 336.8750  $\text{m}^2$
- d) **14.265  $\text{m}^2$**
- e) 11.202 5  $\text{m}^2$

### Question 11

Franca builds a circular garden bed. The radius of the bed is 4.2 m. What is the distance around the bed? (use  $\pi = 3.14$ )

- a) 13.188 m
- b) 7.34 m
- c) 6.28 m
- d) **26.376 m**
- e) 55.389 6 m

### Question 12

The volume of a cylinder is  $350 \text{ cm}^3$ . What is the volume if the height is tripled?

- a) 353  $\text{cm}^3$
- b) 3150  $\text{cm}^3$
- c) 117  $\text{cm}^3$
- d) 9450  $\text{cm}^3$
- e) **1050  $\text{cm}^3$**

### Question 13

Which shape could have 0 or 1 line of symmetry?

- a) quadrilateral
- b) parallelogram
- c) **trapezoid**
- d) rhombus
- e) rectangle

### Question 14

Which statement is true?

- a) **all squares are similar**
- b) all isosceles triangles are similar
- c) all rectangles are similar
- d) only some equilateral triangles are similar
- e) all right triangles are similar

### Question 15

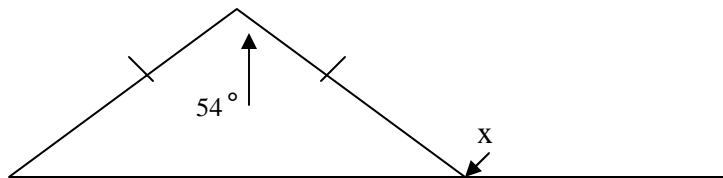
Which of the points is found in the second quadrant?

- a) ( 0, 5)
- b) ( 4, -3)
- c) ( -3, 0)
- d) ( -9, -11)
- e) ( **-7, 11**)

### Question 16

What is the size of the unknown angle x?

- a) **117°**
- b) 63°
- c) 54°
- d) 126°
- e) 27°



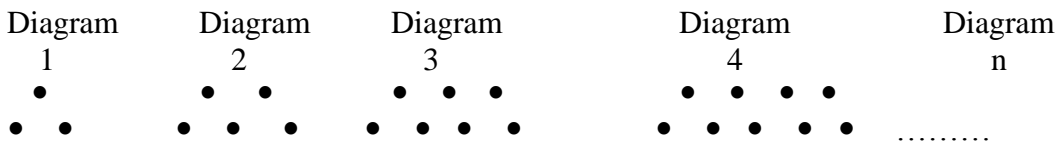
### Question 17

A vertical birdfeeder is 3 m high. The shadow cast by the feeder along the ground is 4 m long. If the base of the feeder and the shadow make a right triangle, how far is it from the top of the feeder to the end of the shadow?

- a) 7 m
- b) 5 m**
- c) 12 m
- d) 25 m
- e) 144 m

### Question 18

The following shows the diagram number and dots in a pattern. What expression shows the general term to find the number of dots for any diagram number?



- a)  $4n - 1$
- b)  $2n + 1$**
- c)  $3n$
- d)  $2(n + 1)$
- e)  $n + 2$

### Question 19

The table shows a pattern of the total number of birds at a feeder on each of the past 4 days.

Day number	1	2	3	4
Number of birds	5	9	13	17

If the pattern continues how many birds may visit the feeder on day 15?

- a) 19
- b) 495
- c) 110
- d) 61**
- e) 56

**Question 20**

What is the value of the expression:  $3x - y + z$  when  $x = -2$ ,  $y = -5$ , and  $z = 8$ ?

- a) 1
- b) 14
- c) 19
- d) -3
- e) 7**

**Question 21**

What is the value of the unknown in the equation:  $5 + 12n = -55$ ?

- a)  $n = -55$
- b)  $n = -5$**
- c)  $n = -72$
- d)  $n = -48$
- e)  $n = 5$

**Question 22**

Which type of graph would best represent the given data?

Distribution of Youth Age Groups in Canada

Age Group	0-4	5-9	10-14	15-19
Population	1 890 000	1 910 000	2 100 000	2 475 000

- a) Pictograph
- b) Histogram**
- c) Line Graph
- d) Bar Graph
- e) Circle Graph

**Question 23**

A set of data contains 15 numbers. What happens to the median when you subtract 3 from each number in the data?

- a) median does not change
- b) median no longer exists
- c) median increases by 3
- d) median decreases by 3**
- e) the median is 3

### Question 24

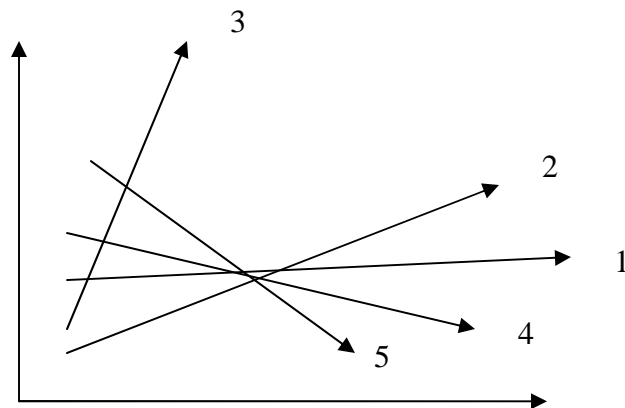
A die has 12 faces numbered 1 to 12. What is the probability that you will roll a number that is not divisible by 3?

- a)  $\frac{2}{3}$
- b)  $\frac{3}{4}$
- c)  $\frac{1}{3}$
- d)  $\frac{1}{12}$
- e)  $\frac{11}{12}$

### Question 25

What phrase would best describe the growth of graph 3?

- a) no growth
- b) slow growth
- c) rapid growth**
- d) slow decline
- e) rapid decline



### Question 26

Jenna saves coins in a jar. The probability of selecting a quarter from the jar is about 33%. She reaches into the jar and pulls out 45 coins. How many might be quarters.

- a) 15**
- b) 2
- c) 30
- d) 43
- e) 12

**Question 27**

What is the product in simplest form:  $(a^{18}b^{12})(b^{11}a)$  ?

- a)  $a^{29}b^{13}$
- b)  $a^{18}b^{23}$
- c)  $a^{18}b^{132}$
- d)  $a^{17}b$
- e)  **$a^{19}b^{23}$**

**Question 28**

The formula for the perimeter (P) of an isosceles triangle is  $P = 2a + b$ .  
What is the length of side a if side b is 8cm and the perimeter is 40cm?

- a) 24 cm
- b) **16 cm**
- c) 30 cm
- d) 64 cm
- e) 50 cm

**Question 29**

What is the sum:  $(5ab^2 - 16a^2b) + (-2a^2b - ab^2)$  ?

- a)  $3ab^2 - 17a^2b$
- b)  $5ab^2 - 18a^2b$
- c)  $5ab^4 - 18a^4b$
- d)  **$4ab^2 - 18a^2b$**
- e)  $6ab^2 + 18a^2b$



**Question 30**

Which does not show a linear relation?

Table A

X-Value	1	2	3	4
Y-Value	-1	2	5	8

Table B

X-Value	1	3	5	7
Y-Value	-2	-8	-14	-20

Table C

X-Value	2	5	8	11
Y-Value	6	27	66	123

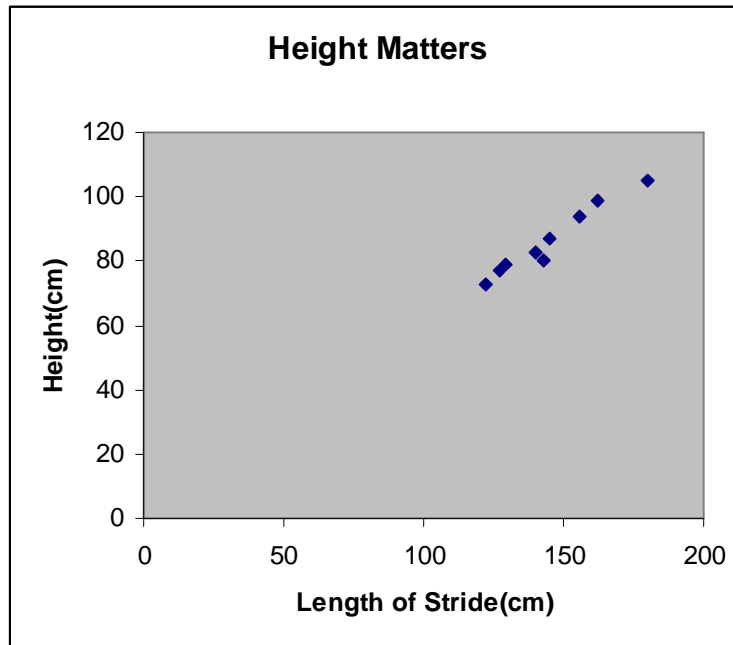
Table D

X-Value	8	16	24	32
Y-Value	35	27	19	11

- a) Table A
- b) Table B
- c) Table C**
- d) Table A and Table D
- e) Table D

### Question 31

Where on the graph would you find someone who has a longer stride length and is shorter than you?



- a) he or she would be to the right of me and above me
- b) he or she would be to the right of me and below me**
- c) he or she would be to the left of me and above me
- d) he or she would be to the left of me and below me
- e) he or she would be to the right of me but at the same height

### Question 32

What is the slope of the line segment that passes through A(2,7) and B(-5,2)?

- a)  $\frac{5}{7}$
- b)  $\frac{7}{5}$
- c)  $\frac{-3}{1}$
- d)  $\frac{-1}{3}$
- e)  $\frac{-5}{7}$

### Question 33

When re-arranged, which form is equivalent to  $3x + 9y + 15 = 0$  ?

- a)  $y = \frac{1}{3}x + \frac{5}{3}$
- b)  $y = 6x - 6$
- c)  $y = -3x - \frac{5}{3}$
- d)  $y = \frac{-1}{3}x - 6$
- e)  **$y = \frac{-1}{3}x - \frac{5}{3}$**

### Question 34

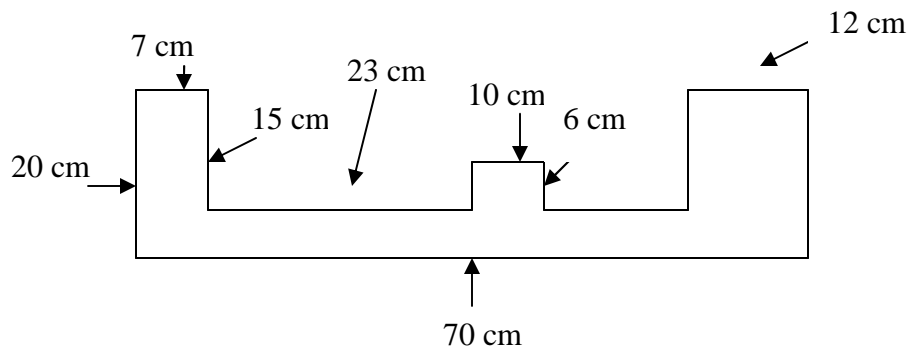
The perimeter of a rectangle is fixed at 20 m.

Which dimensions result in the area being the greatest it can possibly be?

- a) length = 10 m and width = 2 m
- b) length = 7 m and width = 3 m
- c) length = 2 m and width = 8 m
- d) length = 5 m and width = 5 m**
- e) length = 9 m and width = 11 m

### Question 35

If all angles are right angles what is the area of the shape?



- a) 695 cm<sup>2</sup>**
- b) 635 cm<sup>2</sup>
- c) 605 cm<sup>2</sup>
- d) 660 cm<sup>2</sup>
- e) 163 cm<sup>2</sup>