Part A

1. Which of the following numbers is of the form $3n + 2$ where n is an integer?
For instance $14 = 3 \times 4 + 2$ is of the form $3n + 2$.

(A) 2009 (B) 3009 (C) 4009 (D) 7009 (E) 10009

---

2. Courtney, Maureen, and Daryl sometimes pick raspberries for Farmer Harvey. Working two people at a time, Courtney and Daryl can pick 100 boxes in a day, Courtney and Maureen can pick 110 boxes in a day, and Daryl and Maureen can pick 90 boxes a day. How many boxes a day can Daryl pick when he works alone?

(A) 40 (B) 45 (C) 50 (D) 55 (E) 60

---

3. A cinema complex has 800 seats divided into 3 theatres. There are 270 seats in Theatre 1, and there are 150 more seats in Theatre 2 than in Theatre 3. How many seats are in Theatre 2?

(A) 190 (B) 280 (C) 340 (D) 380 (E) None of these

---

4. Martin ate 100 cookies in five days. Each day he ate 6 more than the day before. How many cookies did he eat on the first day?

(A) 6 (B) 8 (C) 10 (D) 12 (E) 14

---

5. A barn has stalls for 1000 animals. Forty percent of the stalls are for ponies and the rest for horses. On Tuesday, there were 200 ponies and a bunch of horses at the barn. The barn was 75 percent full. How many horses were in the stalls?

(A) 400 (B) 450 (C) 500 (D) 550 (E) 600

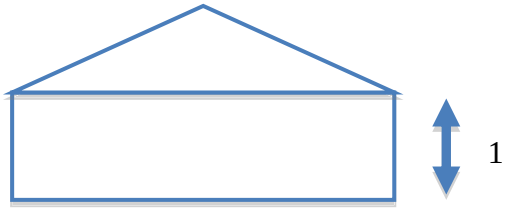
---

6. Pierre has four Canadian coins that together add up to a value of $1.60. At least one of the coins is a quarter. Which of Pierre's coins has the lowest value?

(A) $0.01 (B) $0.05 (C) $0.10 (D) $0.25 (E) Not enough information

---

7. The figure below is made up of two parts: a rectangle with short sides of length 1 and an isosceles triangle. The base of the triangle forms one of the long sides of the rectangle. The area of the triangle is half the area of the rectangle. What is the vertical height of the triangle?



(A) $\frac{1}{2}$ (B) 1 (C) $\frac{3}{2}$ (D) 2 (E) Not enough information

---

8. Last summer Sam worked for a cycle dealer. The dealer agreed to pay him $210 and a new bike for seven weeks of work. But Sam didn't enjoy the job and quit after four weeks. The dealer gave him $21 and the bike. How much was the bike worth?

(A) $216 (B) $225 (C) $231 (D) $253 (E) None of these

---

9. The international space station makes approximately 5760 orbits of the earth a year. Which answer below is closest to the time of one orbit?

(A) 0.5 hour (B) 1.5 hours (C) 3 hours (D) 9 hours (E) 1 day

---

10. A big rectangular chalk board is twice as long as it is wide. If it were 2 meters shorter and 2 meters wider, it would be square. What are the dimensions of the chalk board (width × length in meters)?

(A) 1×2 (B) 2×4 (C) 3×6 (D) 4×8 (E) 5×10

Part B

11. The first three numbers in a sequence are 1, $\frac{2}{3}$, $\frac{4}{9}$. What number do you get by adding together the first 5 numbers in the sequence?

(A) $\frac{91}{243}$ (B) $\frac{212}{243}$ (C) $\frac{91}{81}$ (D) $\frac{130}{81}$ (E) $\frac{211}{81}$

---

12. In 2 years I will be 5 times as old as my son and half as old as my father. My father just turned 78. How old is my son?

(A) 5 (B) 6 (C) 7 (D) 8 (E) 9

---

13. It takes one man one day to dig a 2m x 2m x 2m hole. How many days will it take 3 men working at the same rate to dig a 4m x 4m x 4m hole?

(A) $\frac{3}{8}$ (B) $\frac{2}{3}$ (C) $\frac{4}{3}$ (D) $\frac{3}{2}$ (E) $\frac{8}{3}$

---

14. Bacteria in a petri dish double the area they cover every day. If the dish is covered after 16 days, on what day was only one quarter of it covered?

(A) 4 (B) 8 (C) 10 (D) 12 (E) 14

---

15. $\left(1+\frac{1}{2}\right)\times\left(1+\frac{1}{3}\right)\times\left(1+\frac{1}{4}\right)\times\ldots\times\left(1+\frac{1}{2009}\right)$ is equal to

(A) $\frac{2009}{2}$ (B) 1005 (C) 2009 (D) 2010 (E) None of these

---

16. A motorcycle and a truck left a roadside diner at the same time. After traveling in the same direction for one and a quarter hours, the motorcycle had traveled 25 km farther than the truck. If the average speed of the motorcycle was 60 km/h, what was the average speed of the truck?

(A) 25 km/h (B) 38 km/h (C) 40 km/h (D) 42 km/h (E) 50 km/h

---

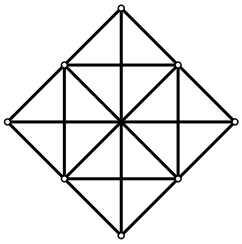
17. Each row and each column of the following grid contains the numbers 1, 2, 3 and 4 exactly once each. The top row of the grid is

1			
			3
	2		1
		4	

(A) 1, 3, 2, 4 (B) 1, 2, 4, 3 (C) 1, 2, 3, 4 (D) 1, 4, 3, 2 (E) 1, 3, 4, 2

---

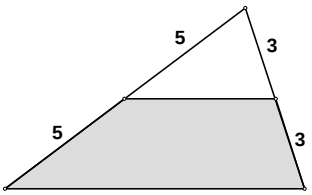
18. How many rectangles are there in the following diagram? Squares are rectangles.



(A) 9 (B) 10 (C) 12 (D) 18 (E) 20

---

19. What proportion of the larger triangle is shaded?



(A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{1}{2}$ (D) $\frac{2}{3}$ (E) $\frac{3}{4}$

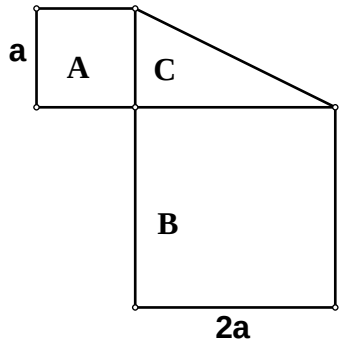
---

20. Two numbers are given. The sum of their squares minus twice their product is equal to 16. What is the difference between the largest and the smallest of these numbers?

(A) 4 (B) 6 (C) 8 (D) 10 (E) 16

Part C

21. Let A, B and C be the areas of the two squares and of the right triangle. The lengths of the sides of the small and large squares are **a** and **2a** respectively. Then $\frac{B+C}{A}$ is equal to



(A) 4 (B) 5 (C) 6 (D) 8 (E) Not enough information

---

22. Four children Alice, Brad, Cathy and Dan are arranged in a line. If Brad and Cathy cannot be next to each other, in how many ways can the kids be arranged?

(A) 6 (B) 12 (C) 14 (D) 16 (E) 24

---

23. A cubic box of side 1m is placed on the floor. A second cubic box of side $\frac{2}{3}$ m is placed on top of the first box so that the centre of the second box is directly above the centre of the first box. A painter paints all of the surface area of the two boxes that can be reached without moving the boxes. What is the total area of surface that is painted?

(A) $\frac{49}{9}$ m^2 (B) $\frac{57}{9}$ m^2 (C) $\frac{61}{9}$ m^2 (D) $\frac{72}{9}$ m^2 (E) None of these

---

24. What is the last digit of 2^{2009} ?

(A) 0 (B) 2 (C) 4 (D) 6 (E) 8

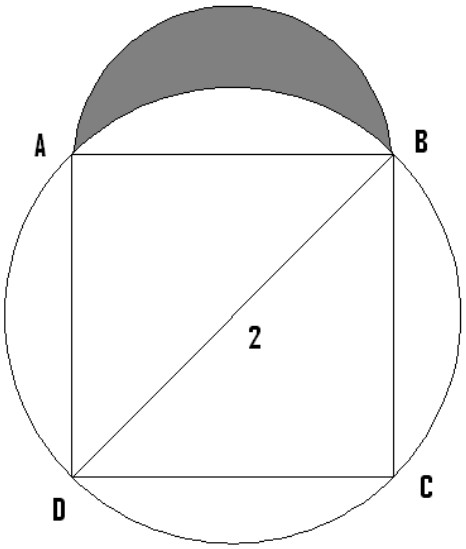
---

25. A horse walks at 75 meters per minute. A fly flies at 150 meters per minute. A fly sitting on the horse's nose flies forward for 1 minute then turns around and flies back to the horse's nose. How far did the horse walk from the time the fly left the horse's nose to the time the fly returned to the horse's nose?

(A) 75 m (B) 100 m (C) 125 m (D) 150 m (E) 175 m

---

26. ABCD is a square embedded in a circle of diameter BD of length 2. AB is the diameter of the half-circle on top of the square. What is the area of the shaded region?



(A) $\frac{4-\pi}{4}$ (B) $\frac{\pi-2}{4}$ (C) $\frac{1}{2}$ (D) 1 (E) Not enough information