

**iMama No Calculator**

**2**

For  $i = \sqrt{-1}$ , what is the sum  $(7 + 3i) + (-8 + 9i)$  ?

- A)  $-1 + 12i$
- B)  $-1 - 6i$
- C)  $15 + 12i$
- D)  $15 - 6i$

**3**

What is the sum of the complex numbers  $2 + 3i$  and  $4 + 8i$ , where  $i = \sqrt{-1}$  ?

- A) 17
- B)  $17i$
- C)  $6 + 11i$
- D)  $8 + 24i$

**4**

Which of the following complex numbers is equal to  $(5 + 12i) - (9i^2 - 6i)$ , for  $i = \sqrt{-1}$  ?

- A)  $-14 - 18i$
- B)  $-4 - 6i$
- C)  $4 + 6i$
- D)  $14 + 18i$

**11**

Which of the following complex numbers is equivalent to  $\frac{3 - 5i}{8 + 2i}$  ? (Note:  $i = \sqrt{-1}$ )

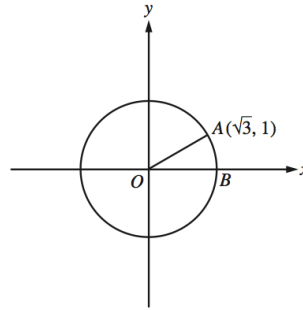
- A)  $\frac{3}{8} - \frac{5i}{2}$
- B)  $\frac{3}{8} + \frac{5i}{2}$
- C)  $\frac{7}{34} - \frac{23i}{34}$
- D)  $\frac{7}{34} + \frac{23i}{34}$

**Radianz No Calculator**

**18**

The number of radians in a 720-degree angle can be written as  $a\pi$ , where  $a$  is a constant. What is the value of  $a$  ?

**19**



In the  $xy$ -plane above,  $O$  is the center of the circle, and the measure of  $\angle AOB$  is  $\frac{\pi}{a}$  radians. What is the value of  $a$  ?

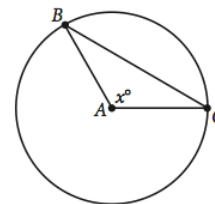
**19**

In a right triangle, one angle measures  $x^\circ$ , where  $\sin x^\circ = \frac{4}{5}$ . What is  $\cos(90^\circ - x^\circ)$  ?

**20**

Points  $A$  and  $B$  lie on a circle with radius 1, and arc  $\widehat{AB}$  has length  $\frac{\pi}{3}$ . What fraction of the circumference of the circle is the length of arc  $\widehat{AB}$  ?

**20**



Note: Figure not drawn to scale.

In the circle above, point  $A$  is the center and the length of arc  $\widehat{BC}$  is  $\frac{2}{5}$  of the circumference of the circle. What is the value of  $x$  ?