**21**

$$\frac{x+3}{x+5} + \frac{6}{x^2+3x-10} =$$

A $\dfrac{x^2+x}{x^2+3x-10}$

B $\dfrac{7x-9}{x^2+3x-10}$

C $\dfrac{x^2+x+12}{x^2+3x-10}$

D $\dfrac{x^2+x+1}{x^2+3x-10}$

**Algebra II**

**22** Which is a simplified form of $\dfrac{3a^2b^3c^{-2}}{(a^{-1}b^2c)^3}$?

**A** $\dfrac{3a^5}{b^3c^5}$

**B** $\dfrac{3ab}{c^5}$

**C** $\dfrac{3}{b^2c^5}$

**D** $\dfrac{3}{ab^3c^5}$

CST00267

**23** What is $\dfrac{20x^{-4}}{27y^2} \div \dfrac{8x^{-3}}{15y^{-5}}$?

**A** $\dfrac{32y^3}{81x}$

**B** $\dfrac{32}{81xy^7}$

**C** $\dfrac{25y^3}{18x}$

**D** $\dfrac{25}{18xy^7}$

CST20321

**24** Which product is equivalent to $\dfrac{4x^2-16}{2-x}$?

**A** $4(x-2)$

**B** $4(x+2)$

**C** $-4(x-2)$

**D** $-4(x+2)$

CST10041

**25** $\dfrac{x^2+4x}{x+3} \cdot \dfrac{x^2-9}{x^2+x-12} =$

**A** 1

**B** $x$

**C** $x+4$

**D** $\dfrac{x+3}{x-3}$

CST10043

**26** What is the simplest form of $\dfrac{5x^3y+20x^2y^2+20xy^3}{5xy}$?

**A** $(x+2)^2$

**B** $(x+2y)^2$

**C** $x^2+y^2$

**D** $x^2+4y^2$

CST10049

**27** $\dfrac{2x^2-10x}{x^2+8x+16} \cdot \dfrac{4x+16}{x^2-25} =$

**A** $\dfrac{8x}{(x+4)(x-5)}$

**B** $\dfrac{2x+4}{(x+4)(x+5)}$

**C** $\dfrac{8x}{(x+4)(x+5)}$

**D** $\dfrac{2x+4}{x^2+20}$

CST20307

**28**

$$\frac{4(x+y)}{5x^2y^3} \div \frac{-2x-2y}{10} =$$

**A** $\quad -\dfrac{4}{x^2y^3}$

**B** $\quad \dfrac{4}{x^2y^3}$

**C** $\quad -\dfrac{4(x+y)}{x^2y^3(x-y)}$

**D** $\quad \dfrac{4(x+y)^2}{5x^2y^3}$

CST20308

**29** If $i = \sqrt{-1}$, which point shows the location of $5-2i$ on the plane?

*Imaginary*
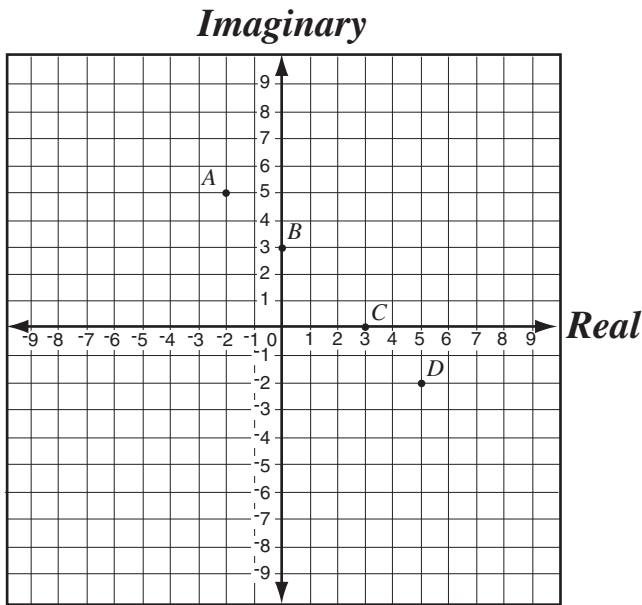


**A** point $A$

**B** point $B$

**C** point $C$

**D** point $D$

CST00510

**30** If $i = \sqrt{-1}$, what is the value of $i^4$ ?

**A** $\quad i$

**B** $\quad -i$

**C** $\quad 1$

**D** $\quad -1$

CST00238

**31** Which of the following complex numbers is represented by the point on the graph below?

**Imaginary**
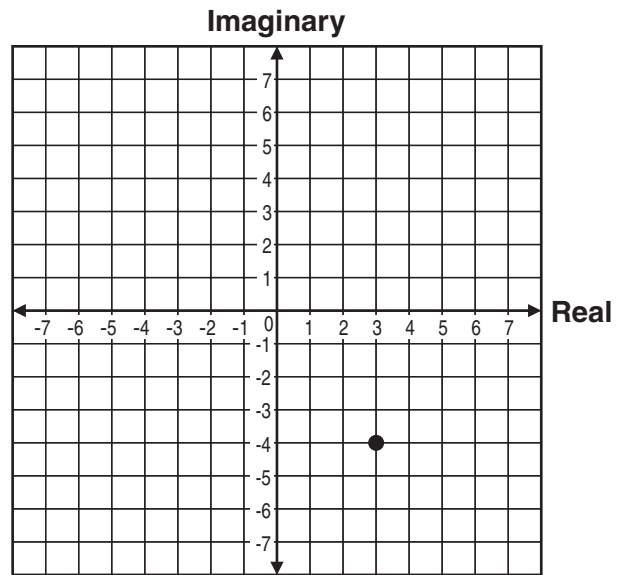


**A** $\quad 4+3i$

**B** $\quad 4-3i$

**C** $\quad 3-4i$

**D** $\quad 3+4i$

CST30142

— **11** —

# Algebra II

**32** If $i = \sqrt{-1}$, then $4i(6i) =$

A   48

B   24

C   $-24$

D   $-48$

CST00512

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**33** What is an equivalent form of $\dfrac{2}{3+i}$?

A   $\dfrac{3-i}{4}$

B   $\dfrac{3-i}{5}$

C   $\dfrac{4-i}{4}$

D   $\dfrac{4-i}{5}$

CST10040

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**34** What is the product of the complex numbers $(3+i)$ and $(3-i)$?

A   8

B   10

C   $9-i$

D   $10-6i$

CST10038

**35** If $i = \sqrt{-1}$ and $a$ and $b$ are non-zero real numbers, what is $\dfrac{1}{a+bi}$?

A   $\dfrac{a+bi}{a^2+b^2}$

B   $\dfrac{a-bi}{a^2+b^2}$

C   $\dfrac{a+bi}{a^2-b^2}$

D   $\dfrac{a-bi}{a^2-b^2}$

CST10371

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**36** Which expression represents $(-3-2i)-(-5+i)$?

A   $-8-3i$

B   $-8-i$

C   $2-i$

D   $2-3i$

CST10036

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**37** What is the sum of the complex numbers $(12-5i)$ and $(-3+4i)$?

A   $9-i$

B   $15-9i$

C   $-16+63i$

D   $9-9i$

CST20301

**38** What are the solutions to the equation $x^2 + 2x + 2 = 0$?

A $\quad x = 0; x = -2$

B $\quad x = 0; x = -2i$

C $\quad x = -1 + i; x = -1 - i$

D $\quad x = -1 + 2\sqrt{2}; x = -1 - 2\sqrt{2}$

CST00114

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**39** What are the solutions to the equation $1 + \dfrac{1}{x^2} = \dfrac{3}{x}$?

A $\quad x = \dfrac{3}{2} + \dfrac{\sqrt{5}}{2}; x = \dfrac{3}{2} - \dfrac{\sqrt{5}}{2}$

B $\quad x = 3 + \dfrac{\sqrt{5}}{2}; x = 3 - \dfrac{\sqrt{5}}{2}$

C $\quad x = \dfrac{3}{2} + \dfrac{\sqrt{13}}{2}; x = \dfrac{3}{2} - \dfrac{\sqrt{13}}{2}$

D $\quad x = 3 + \dfrac{\sqrt{13}}{2}; x = 3 - \dfrac{\sqrt{13}}{2}$

CST00197

**40** There are two numbers with the following properties.

1) The second number is 3 more than the first number.

2) The product of the two numbers is 9 more than their sum.

Which of the following represents possible values of these two numbers?

A $\quad -6, -3$

B $\quad -4, -1$

C $\quad -1, 4$

D $\quad -3, 6$

CST20109