Review for Exam 12

1. 2

Express the sum $\sqrt{-25} + 2\sqrt{-9}$ as a monomial in terms of i.

1. 11
2. $11i$
3. $5i + 6$
4. $6i$

2. 4

Express the product of $4 - 3i$ and $2 + i$ in simplest $a + bi$ form.

1. $2 + 11i$
2. $2 - 11i$
3. $11 + 2i$
4. $11 - 2i$

3. 2

The product of $5 - 2i$ and i is

1. 7
2. $2 + 5i$
3. $5 - 2i$
4. $-2 + 5i$

4. 2

Expressed in $a + bi$ form, $(1 + 3i)^2$ is equivalent to

1. $10 + 6i$
2. $-8 + 6i$
3. $10 - 6i$
4. $-8 - 6i$

5. 3

Expressed in $a + bi$ form, $\frac{5}{3+i}$ is equivalent to

1. $\frac{15}{8} - \frac{5}{8}i$
2. $\frac{5}{3} - 5i$
3. $\frac{3}{2} - \frac{1}{2}i$
4. $15 - 5i$

6. 4

Express $\frac{5}{2-i}$ in simplest $a + bi$ form.

1. $2i$
3. $2 - i$
2. $i - 2$
4. $2 + i$

7. 4

Subtract $(3 - 2i)$ from $(-2 + 3i)$, and express in $a + bi$ form.

1. $1 + i$
2. $1 - i$
3. $5 - 5i$
4. $-5 + 5i$

8. 2

Simplify and express in $a + bi$ form: $(12 + 3i) - (3 - i)$

1. $9 + 2i$
2. $9 + 4i$
3. $15 + 2i$
4. $15 - 2i$

9. 3

The expression i^{10} is equivalent to

1. 1
3. -1
2. i
4. $-i$

10. 2

Evaluate: $-10x^0$

1. 10
3. $-10x$
2. -10
4. $10/x$

11. 4

The value of $(2i^3)^3$ is

1. -6
3. -8
2. $6i$
4. $8i$

12. 1

The expression $8^{-\frac{2}{3}}$ is equivalent to

1. $\frac{1}{4}$
2. $-\frac{1}{4}$
3. -4
4. 4

13. 1

Evaluate: $4^0 - 8^{2/3} + 9^{1/2}$

1. 0
2. −5/6
3. 3
4. 19/6

14. 4

What is the value of $i^{99} - i^3$?

1. 1
2. i^{96}
3. $-i$
4. 0

15. 3

If x is a positive integer, $4x^{\frac{1}{2}}$ is equivalent to

1. $\frac{2}{x}$
2. $2x$
3. $4\sqrt{x}$
4. $4\frac{1}{x}$

16. 2

The expression $b^{-\frac{3}{2}}$, $b > 0$, is equivalent to

1. $\frac{1}{\left(\sqrt[3]{b}\right)^2}$
2. $\frac{1}{\left(\sqrt{b}\right)^3}$
3. $-\left(\sqrt{b}\right)^3$
4. $\left(\sqrt[3]{b}\right)^2$

17. 2

The expression $\sqrt[4]{16a^6b^4}$ is equivalent to

1. $2a^2b$
2. $2a^{\frac{3}{2}}b$
3. $4a^2b$
4. $4a^{\frac{3}{2}}b$

18. 1

Which expression is equivalent to x^{-4}?

1. $\frac{1}{x^4}$
2. x^4
3. $-4x$
4. 0

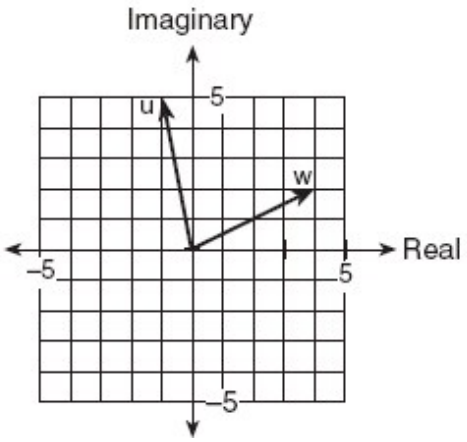
19. 2

What is the value of 2^{-3}?

1. $\frac{1}{6}$
2. $\frac{1}{8}$
3. -6
4. -8

20. 2

Two complex numbers are graphed below.



What is the sum of w and u, expressed in standard complex number form?

1. $7 + 3i$ 3. $5 + 7i$
2. $3 + 7i$ 4. $-5 + 3i$

21. 4

The expression $\frac{2+i}{3+i}$ is equivalent to

1. $\frac{6+5i}{8}$
2. $\frac{6+i}{8}$
3. $\frac{7-5i}{10}$
4. $\frac{7+i}{10}$

22. 4

What is the multiplicative inverse of $3i$?

1. $-3i$
2. -3
3. $\frac{1}{3}$
4. $-\frac{i}{3}$

23. 3

Rewrite the expression $x^{1/4}$ using radicals.

1. $\sqrt{x}^4$
2. $\frac{1}{x^4}$
3. $\sqrt[4]{x}$
4. $\sqrt[4]{\frac{1}{x}}$

24. 4

Rewrite the expression $ab^{1/2}$ using radicals.

1. $\sqrt{ab}$
2. $\frac{a}{\sqrt{b}}$
3. $\frac{ab}{2}$
4. $a\sqrt{b}$

25. 1

Rewrite the radical expression $\sqrt[3]{x^2y^4}$ using exponents. *Do not* leave the answer in terms of a fraction. *Use negative exponents when needed.*

1. $x^{2/3}y^{4/3}$
2. x^6y^{12}
3. $x^{3/2}y^{3/4}$
4. $3x^2y^4$

26. 2

Simplify the expression $\left(6xy^{-4}z^2\right)^{-3}$ so that it uses positive exponents, only.

1. $216x^3z^6y^{12}$
2. $\frac{y^{12}}{216x^3z^6}$
3. $\frac{-18y^{12}}{x^3z^6}$
4. $\frac{y^{12}}{18x^3z^6}$

27. 3

Simplify the expression $\frac{x^{-3}y^2z^4}{xy^{-4}z^2}$ so that it uses positive exponents, only.

1. $\frac{x^4}{y^6z^2}$
2. $\left(\frac{yz}{x}\right)^4$
3. $\frac{y^6z^2}{x^4}$
4. $x^4y^6z^2$

28. 2

Simplify the expression $\frac{6^{-1}a^{-3}b^4}{5^{-2}ab^5}$ so that it uses positive exponents, only.

1. $\frac{25a^4b}{6}$
2. $\frac{25}{6a^4b}$
3. $150a^4b$
4. $\frac{3}{5a^4b}$

29. 2

Simplify the expression $\frac{4i}{1-2i}$ and put it into $a + bi$ form.

1. $\frac{8-4i}{5}$
2. $\frac{-8+4i}{5}$
3. $-\frac{4i-8}{5}$
4. $\frac{-8-4i}{5}$

30. 3

Simplify the expression $\frac{3+3i}{-2i}$ and put it into $a + bi$ form.

1. $-\frac{3i-3}{2}$
2. $\frac{3-3i}{2}$
3. $\frac{-3+3i}{2}$
4. $\frac{3+3i}{2}$

31. 1

Simplify the expression $\frac{2-4i}{i}$ and put it into $a + bi$ form.

1. $-4 - 2i$
2. $4 - 2i$
3. $-2 - 4i$
4. $2 - 4i$

32. 2

Simplify the expression $\frac{5+6i}{4-2i}$ and put it into $a + bi$ form.

1. $\frac{16+17i}{10}$
2. $\frac{4+17i}{10}$
3. $\frac{4+17i}{20}$
4. $\frac{4+34i}{10}$

33. 1

Express the multiplicative inverse of $3i + 1$ in $a + bi$ form.

1. $\frac{1-3i}{10}$
2. $\frac{-1-3i}{10}$
3. $\frac{-1+3i}{10}$
4. $\frac{1-3i}{-10}$

34. 3

What is the absolute value of the vector resulting from graphing the complex number $-3 - 6i$?

1. 45
2. $9\sqrt{5}$
3. $3\sqrt{5}$
4. 5

35. 2

What is the absolute value of the vector resulting from graphing the complex number $2 + 8i$?

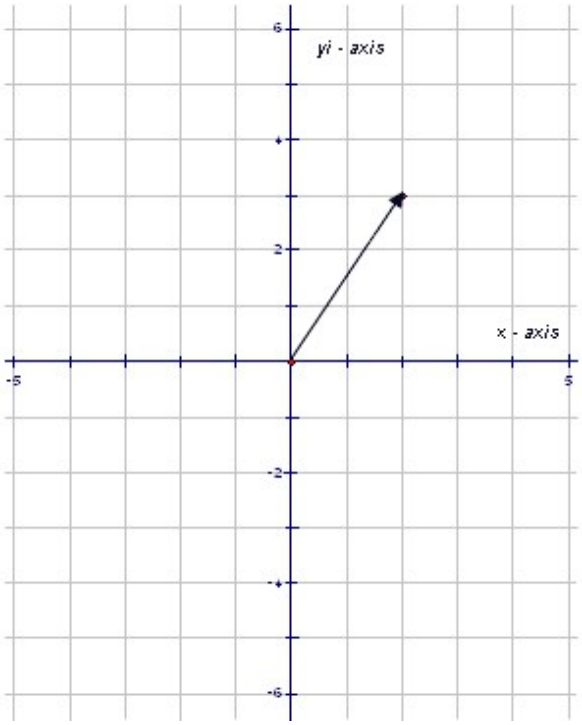
1. 68
2. $2\sqrt{17}$
3. $4\sqrt{17}$
4. 4

36. 3

What is the absolute value of the vector resulting from graphing the complex number $-4 + i$?

1. $3i\sqrt{2}$
2. $\sqrt{-15}$
3. $\sqrt{17}$
4. 17

37. What is the complex number graphed below?



Answer: **2** + **3***i*

38. __1__

The expression $\frac{a^2b^{-3}}{a^{-4}b^2}$ is equivalent to:

1. $\frac{a^6}{b^5}$
2. $\frac{b^5}{a^6}$
3. $\frac{a^2}{b}$
4. $a^{-2}b^{-1}$

39. __3__

What is the simplified form of $\frac{14x^5y^9}{2xy^3}$?

1. $12x^5y^9$
2. $7x^6y^{12}$
3. $7x^4y^6$
4. $7x^5y^3$

40. 3

What is the conjugate of $-3 + 2i$?

1. $-2 + 3i$
2. $3 - 2i$
3. $-3 - 2i$
4. $2 - 3i$