Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Algebra radicals and complex numbers quiz review

\* show all work \*no decimals permitted \*all answers in simplest radical form, including no radicals on denominator

Simplify

|  |  |  |  |
| --- | --- | --- | --- |
| 1. $\sqrt{45}$ | 2. $\sqrt{90}$ | 3. $\sqrt{98a^{10}b^{5}c^{16}d}$ | 4. $\sqrt{-500}$ |
| 5. $\sqrt{-18}$ | 6. $\sqrt{-121}$ | 7. $\sqrt{120ab^{7}c^{24}}$ | 8. $6\sqrt{80x^{2}}$ |

ADD/SUBTRACT

|  |  |  |  |
| --- | --- | --- | --- |
| 9. 10$\sqrt{11}$ + 8$\sqrt{11}$ | 10. 19$\sqrt{2}$ - $\sqrt{2}$ | 11. $\sqrt{200 }$ + 5$\sqrt{32}$ | 12. 4$\sqrt{27}$ - $\sqrt{48}$ |
| 13. (3 + 9i) – (3 – 9i) | 14. (2 + i) + (8 – 10i) | 15. (3 - $\sqrt{-225}$) + (5 + $\sqrt{-196}$) | 16. (-9 + $\sqrt{-1}$) – (5 - $\sqrt{-81}$) |

SIMPLIFY

|  |  |  |  |
| --- | --- | --- | --- |
| 17. i37 | 18. i80 | 19. i99 | 20. i78 |

MULTIPLY

|  |  |  |  |
| --- | --- | --- | --- |
| 21. (3$\sqrt{6}$)(5$\sqrt{2}$) | 22. $\sqrt{8}$(4 - $\sqrt{3}$) | 23. $\sqrt{12}$(3$\sqrt{8}$) | 24. $\sqrt{6}$(10 + $\sqrt{8}$) |
| 25. (10i)(4i) | 26. (-5i)(2i) | 27. (3i)(2i)(5i) | 28. 5i(i) |
| 29. (3 + 5i)(3 – 5i) | 30. (4 + 6i)(6 – 4i) | 31. (3 – 4i)(8 – 2i) | 32. (3 + 6i)(8 – i) |

DIVIDE/REDUCE.

|  |  |  |  |
| --- | --- | --- | --- |
| 33. $\sqrt{\frac{5}{9}}$ | 34. $\sqrt{\frac{17}{196}}$ | 35. $\sqrt{\frac{60}{49x^{2}}}$ | 36. $\sqrt{\frac{50x}{121}}$ |
| 37. $\sqrt{\frac{84x^{3}}{21x}}$ | 38. $\sqrt{\frac{5}{45}}$ | 39. $\sqrt{\frac{80x}{10}}$ | 40. $\frac{18}{\sqrt{2}}$ |
| 41. $\frac{5}{\sqrt{6}}$ | 42. $\frac{\sqrt{3}}{\sqrt{8x}}$ | 43. $\frac{\sqrt{7}}{\sqrt{18}}$ | 44. $\frac{4x}{\sqrt{20}}$ |