

Simplify the expression:

1. $\sqrt{32}$

$4\sqrt{2}$

2. $\sqrt{50}$

$5\sqrt{2}$

3. $\sqrt{68}$

$2\sqrt{17}$

4. $\sqrt{\frac{16}{36}}$

$\frac{4}{6} = \frac{2}{3}$

5. $\sqrt{\frac{11}{9}}$

$\frac{\sqrt{11}}{3}$

6. $\sqrt{\frac{28}{64}}$

$\frac{2\sqrt{7}}{8} = \frac{\sqrt{7}}{4}$

Final answer

Write the complex number in standard form:

7. $\sqrt{-20}$

$2i\sqrt{5}$

8. $\sqrt{-19}$

$i\sqrt{19}$

9. $\sqrt{-49}$

$7i$

10. $2 + \sqrt{-40}$

$2 + 2i\sqrt{10}$

11. $6 - \sqrt{-104}$

$6 - 2i\sqrt{26}$

12. $-3 + \sqrt{48 - 96}$

$-3 + \sqrt{-48}$
 $-3 + 4i\sqrt{3}$

Find real numbers x and y to make the equation true:

13. $2x + 3yi = 16 + 24i$

$2x = 16$ $3y = 24$
 $x = 8$ $y = 8$

14. $6x - 4yi = 3 + 16i$

$6x = 3$ $-4y = 16$
 $x = 1/2$ $y = -4$

15. $5x + i = 30 - 4yi$

$5x = 30$ $1 = -4y$
 $x = 6$ $-1/4 = y$

16. $-2 - 7yi = 10x + 14i$

$-2 = 10x$ $-7y = 14$
 $-1/5 = x$ $y = -2$

Match the expression with the correct standard form:

17. $(5 + 3i) + (1 + 4i)$ — A. $5 - 10i$
 18. $(3 - 2i) + (2 - 8i)$ — B. $6 + 7i$
 19. $(5 + i) - (6 - 3i)$ — C. $-1 + 4i$

Write the expression in standard form:

20. $(9 - 2i) + (-2 + 4i)$

$$9 - 2i - 2 + 4i$$

$$\boxed{7 + 2i}$$

22. $3 - (12 + 8i) + 6i$

$$3 - 12 - 8i + 6i$$

$$\boxed{-9 - 2i}$$

Write the expression as a complex number in standard form:

24. $-6i(5 + 3i)$

$$-30i - 18i^2 + 18$$

$$\boxed{18 - 30i}$$

21. $(-3 - i) - (6 - 7i)$

$$-3 - i - 6 + 7i$$

$$\boxed{-9 + 6i}$$

23. $-5i + (15 - 9i) + 1$

$$-5i + 15 - 9i + 1$$

$$\boxed{16 - 14i}$$

25. $(-5 - i)(10 - 6i)$

$$-50 + 30i - 10i + 6i^2 - 6$$

$$\boxed{-56 - 40i}$$

26. $(7 - 2i)(-1 + i)$

$$-7 + 7i + 2i - 2i^2 + 2$$

$$\boxed{-5 + 9i}$$

27. $(9 - 4i)(3 - 2i)$

$$27 - 18i - 12i + 8i^2 - 8$$

$$\boxed{19 - 30i}$$

28. $\frac{4+i}{2-i} \cdot \frac{2+i}{2+i}$

$$\frac{8+4i+2i+i^2-1}{4+2i-2i-i^2+1}$$

$$\boxed{\frac{7+6i}{5}}$$

29. $\frac{2-6i}{3i} \cdot \frac{-3i}{-3i}$

$$\frac{-6i+18i^2-18}{-9i^2+9}$$

$$\frac{-18-6i}{9} = \boxed{\frac{-6-2i}{3}}$$