# *Test Bank Exercises in*

# CHAPTER 1

### Exercise Set 1.2

1. Perform the indicated operations $\left(\frac{3}{4} - 2\right) + \left(\frac{1}{4} + 5\right)$.

   (a) 4 (b) $\frac{7}{2}$ (c) $\frac{7}{4}$ (d) None of the above.

2. Perform the indicated operations $\left(\frac{2}{3} + \frac{3}{2}\right) + \left(\frac{7}{4} - 1\right)$.

   (a) $\frac{7}{4}$ (b) $\frac{35}{12}$ (c) $-\frac{35}{12}$ (d) None of the above.

3. Perform the indicated operations $\left(\frac{3}{5}\right)\left(\frac{6}{7}\right) + \left(\frac{9}{5}\right)\left(\frac{4}{7}\right)$.

   (a) $\frac{54}{35}$ (b) $\frac{54}{70}$ (c) $\frac{116}{35}$ (d) None of the above.

4. Perform the indicated operation $3\left(\frac{5}{9}\right) - \left(\frac{5}{4}\right)\left(\frac{12}{45}\right)$.

   (a) $-\frac{5}{9}$ (b) $\frac{4}{3}$ (c) $\frac{2}{9}$ (d) None of the above.

5. Perform the indicated operations $\dfrac{\frac{11}{15} - \frac{13}{13} + 1}{\frac{11}{12} + \frac{13}{15} - 1}$.

6. Perform the indicated operations $\dfrac{\frac{3}{2}}{\frac{3}{4}} + \dfrac{\frac{5}{6}}{\frac{7}{9}}$.

7. Perform the indicated operations $\dfrac{\dfrac{11}{19}}{\dfrac{15}{19}} - \dfrac{\dfrac{23}{21}}{\dfrac{17}{21}}$.

8. Perform the indicated operations $\left(\dfrac{7}{8}\right)\left(\dfrac{1}{\dfrac{7}{3}+\dfrac{11}{12}}\right)$.

   (a) $\dfrac{213}{154}$ (b) $\dfrac{7}{26}$ (c) $\dfrac{59}{56}$ (d) None of the above.

9. Perform the indicated operations $\left(\dfrac{11}{15}\right)\left(\dfrac{\dfrac{1}{5}+\dfrac{1}{9}}{\dfrac{1}{2}-\dfrac{10}{17}}\right)$.

   (a) $-\dfrac{11}{37}$ (b) $\dfrac{11}{20}$ (c) $\dfrac{476}{135}$ (d) None of the above.

10. Perform the indicated operations $\left(1+\dfrac{1}{2}+\dfrac{1}{3}\right) \div \left(\dfrac{1}{4}+\dfrac{1}{5}+\dfrac{1}{6}\right)$.

    (a) $\dfrac{110}{37}$ (b) $\dfrac{111}{120}$ (c) $\dfrac{5}{2}$ (d) None of the above.

11. List the set of possible values of getting a total of six when tossing two standard dice.

12. A care travels 112 miles on 7 gallons of gasoline. How far will it travel on 12 gallons of gasoline?

13. A string 15 feet long is cut into two pieces, the lengths of which are in the ratio 3:4. Find the length of the pieces.

    (a) $11\frac{1}{4}, 3\frac{3}{4}$ (b) 10, 5 (c) 12, 3 (d) None of the above.

14. A piece of property is valued at $57,800. What is the real estates tax at $77.50 per $1,000.00 evaluation?

    (a) $77.50 (b) $7,775 (c) $4,479.50 (d) None of the above.

15. A man's monthly take home pay is $3,200 after deducting 18% withholding tax. What is his pay before the deduction?

16. Which is the better value: 1 lb. 7 oz. of peas for 85 cents, or 14 oz. for 55 cents?

17. On a road map, 1 inch represents 5 miles. How many miles are represented by 5.25 inches?

    (a) 26.25 mi. (b) 10.5 mi. (c) 5.25 mi. (d) None of the above.

18. The length of a certain rectangular box is five times its width, and its height is four times its width. Find the volume of the box if its width is 7 inches.
(a) 70 $in^3$ (b) 343 $in^3$ (c) 6860 $in^3$ (d) None of the above.

19. A closed box has length 24 inches. Its width is one-third its height, and its height is one-half its length. Find the total surface area of this box.
(a) 864 $in^2$ (b) 1002 $in^2$ (c) 1152 $in^2$ (d) None of the above.

20. A pair of shoes sells for $37.75 after a discount of 15% from its original price. Find its original price.

## Exercise Sets 1.3 and 1.4

1. The perimeter of a rectangle is given by the formula $P = 2(L + W)$, where $L$ is the length and $W$ is the width of the rectangle. Find the perimeter if $L = 5.4$ feet and $W = 3.7$ feet.

2. Evaluate the expression $\dfrac{|a - b|}{1 + |a - b|}$ when $a = 3.5$ and $b = 7.5$.

3. Evaluate the expression $\dfrac{|x|}{1 + |x|} + \dfrac{|y|}{1 + |y|}$ when $x = -1.5$ and $y = -.75$.
(a) $\dfrac{36}{35}$ (b) $\dfrac{6}{35}$ (c) $\dfrac{1}{2}$ (d) None of the above.

4. Evaluate $\dfrac{234}{15 + \dfrac{12}{3 - \dfrac{x + 3}{5}}}$ when $x = -7$.
(a) $\dfrac{3835}{19}$ (b) $\dfrac{4617}{345}$ (c) $\dfrac{4446}{345}$ (d) None of the above.

5. Multiply $(2x^2 + 3xy - y^3)(x - 5y)$.
(a) $2x^3 - 7x^2 - 15xy^2 + 5y^4$ (b) $2x^3 - 7x^2 - 15xy^2 - xy^3 + 5y^4$
(c) $2x^3 + 7x^2y - xy^2 + 5y^4$ (d) None of the above.

6. Multiply $(3a - 2b)(9a^2 + 6ab + 4b^2)$.
(a) $27a^3 + 8b^3$ (b) $27a^3 - 8b^3$
(c) $27a^3 + 9a^2b + 4ab^3 - 8b^3$ (d) None of the above.

7. Multiply $(u + 4)(u^2 - 4uv + 16v^2)$.
(a) $u^3 + 64v^3$ (b) $u^3 + 7u^2v - 6uv^2 + 64v^3$
(c) $u^3 - 64v^3$ (d) None of the above.

8. Multiply $3y^2z^3(2y - 3z)(2y + 3z)$.
(a) $12y^4z^3 - 27y^2z^6$ (b) $12y^4 - 27z^6$

(c) $12y^4z^3 - 27y^2z^5$ (d) None of the above.

9. Multiply $2xy^5(3x + y)(3x - y)$.
   (a) $18x^2y^5 - 2xy^{10}$ (b) $18x^3y^5 - 2xy^7$
   (c) $18x^2 - 2y^{10}$ (d) None of the above.

10. Multiply $(x^2 - 4x + 4)(x^2 + 4x + 4)$.
   (a) $x^4 + 8x^2 + 16$ (b) $x^4 - 8x^2 + 16$
   (c) $x^4 - 16x^2 + 16$ (d) None of the above.

11. Multiply $(z^2 + 2z + 1)(z^2 - 2z + 1)$.
   (a) $z^4 - 2z^2 + 1$ (b) $z^4 + 2z^2 + 1$
   (c) $z^4 - 1$ (d) None of the above.

12. Perform the indicated operations and simplify the expression $(x^2 + 2y)[(x + y)^2 - (x - y)^2]$.
   (a) $x^2 + 2y$ (b) $x^4 + 2x^2y$ (c) $4x^3y + 8xy^2$ (d) None of the above.

13. Perform the indicated operations and simplify the expression $(xy + yz)[(2x + 3z)^2 - (2x - 3z)^2]$.
   (a) $4x^3y + 9xyz^2 + 4x^2yz + 9yz^3$ (b) $24x^2yz + 24xyz^2$
   (c) $xy + yz$ (d) None of the above

14. Perform the indicated operations and simplify the expression $(x^2 - y^2)[(x - y)^2 + (x + y)^2] + 2y^4$.
   (a) $2x^4$ (b) $2x^4 + 2y^4$ (c) $4x^3y + 4xy^3 + 2y^4$ (d) None of the above.

15. Multiply $(x - 1)(x + 1)(x^2 + 1)$.
   (a) $x^4 + 1$ (b) $x^4 - 2x^2 + 1$ (c) $x^4 - 1$ (d) None of the above.

16. Multiply $(2x - z)(2x + z)(4x^2 + z^2)$.
   (a) $16x^4 - z^4$ (b) $16x^4 + z^4$ (c) $16x^4 - 8x^2z + z^4$ (d) None of the above.

17. Multiply $(2x + 3y)(2x - 3y)(4x^2 + 9y^2)$.
   (a) $16x^4 - 4x^2y^2 + 81y^4$ (b) $16x^4 + 81y^4$
   (c) $16x^4 - 81y^4$ (d) None of the above.

18. Perform the indicated operations and simplify the expression $(x^2 - y^2)[(x + y)^2 - 2xy]$.
   (a) $x^4 + 4x^2y^2 + y^4$ (b) $x^4 - y^4$
   (c) $x^4 - y^4 + 4x^2y^2$ (d) None of the above.

19. Find the value of the polynomial $4x^3y^2 - 3xy^2 + xy - 2x + y + 7$ when $x = -2$ and $y = 1$.
   (a) 7 (b) 0 (c) –16 (d) None of the above.

20. Find the value of the polynomial $x^3y^3 + 3x^2y^3 - 5x^2y + xy - 3x + 4$ when $x = 2$ and $y = -2$.

## Exercise Set 1.5

1. Factor completely $3x^2 - 10xy - 8y^2$.

2. Factor completely $4x^2 - 11x - 3$.

3. Factor completely $10x^2 - 21xy - 10y^2$.

4. Factor completely $9x^4 + 6x^3 + x^2$.

5. Factor completely $x^2y^2 - 4x^3y + 4x^4$.

6. One of the factors of $16x^4 - 81y^4$ is
   (a) $2x + 9y$ (b) $4x^2 + 9y^2$ (c) $4x + 9y$ (d) None of the above.

7. One of the factors of $x^3 - 27$ is
   (a) $x^2 + 3x + 9$ (b) $x^2 - 3x + 9$ (c) $x^2 - 9$ (d) None of the above.

8. One of the factors of $8x^3 - 1$ is
   (a) $8(x - 1)$ (b) $2x - 1$ (c) $4x^2 - 1$ (d) None of the above.

9. One of the factors of $27x^6 - y^6$ is
   (a) $3x^2 - y^2$ (b) $3(x^2 - y^2)$ (c) $3x - y$ (d) None of the above.

10. Factor completely $x^4 - 16y^4$.

## Exercise Set 1.6

1. Perform the indicated operations and simplify the expression $\dfrac{1}{x-1} - \dfrac{2}{x^2-1}$.

   (a) $\dfrac{1}{x+1}$ (b) $\dfrac{-1}{x-1}$ (c) $\dfrac{x^2-3}{x^2-1}$ (d) None of the above.

2. Perform the indicated operations and simplify the expression $\dfrac{x^2-4}{x+2} + \dfrac{4x-8}{2}$.

   (a) $3x - 6$ (b) $x - 2$ (c) $\dfrac{x^2+4x-12}{2(x+2)}$ (d) None of the above.

3. Perform the indicated operations and simplify the expression $\dfrac{2}{x+1} + \dfrac{1}{x-2} - \dfrac{1}{x^2-1}$.

   (a) $\dfrac{x^2+2x}{(x-2)(x^2-1)}$ (b) $\dfrac{x}{x^2-1}$

   (c) $\dfrac{3x^2-7x+5}{(x-2)(x^2-1)}$ (d) None of the above.

4. Perform the indicated operations and simplify the expression $\frac{1}{x-3}+\frac{1}{x+3}$.

(a) $\frac{2}{x^2-9}$ (b) $\frac{2x}{x^2-9}$ (c) $\frac{1}{x^2-3}$ (d) None of the above.

5. Perform the indicated operations and simplify the expression $\frac{-2}{x}+\frac{1}{x-1}+\frac{1}{x+1}$

(a) $\frac{2x+4}{x^3-x}$ (b) $\frac{x^2-x+2}{x(x-1)(x+1)}$ (c) $\frac{2}{x(x^2-1)}$ (d) None of the above.

6. Perform the indicated operations and simplify the expression $\frac{x^2-3x+2}{x^2+5x+4}\cdot\frac{x+1}{x-1}$.

(a) $\frac{x-2}{x+4}$ (b) $\frac{x+2}{x-4}$ (c) $\frac{x-2}{x-4}$ (d) None of the above.

7. Perform the indicated operations and simplify the expression $\frac{4x^2-4}{x^2+2x+1}\cdot\frac{x+1}{x-1}$.

(a) $\frac{4x}{x^2+2x+1}$ (b) $\frac{4}{x^2+2x+1}$
(c) 4 (d) None of the above.

8. Perform the indicated operations and simplify the expression $\frac{x^2-9}{x^2+6x+9}\cdot\frac{x+3}{x-9}$.

(a) $\frac{x+9}{x-9}$ (b) $\frac{x-3}{x-9}$ (c) $\frac{x-3}{x+3}$ (d) None of the above.

9. Perform the indicated operations and simplify the expression $\frac{3x^2-12}{x+2}\cdot\frac{x}{x-2}$.

(a) $3x$ (b) $\frac{x-4}{x-2}$ (c) $\frac{x-4}{x+2}$ (d) None of the above.

10. Perform the indicated operations and simplify the expression $\frac{2-3x-2x^2}{x^2+3x}\div\frac{x^2+3x+2}{x+3}$.

(a) $\frac{x+2}{x^2+3x}$ (b) $\frac{1+2x}{x^2+x}$ (c) $\frac{1-2x}{x(x+1)}$ (d) None of the above.

11. Perform the indicated operations and simplify the complex fraction $\dfrac{x+2}{1+\frac{2}{x}}$.

(a) $x$ (b) $\frac{1}{x}$ (c) $\frac{x}{2}$ (d) None of the above.

12. Perform the indicated operations and simplify the complex fraction $\dfrac{4-\dfrac{9}{x^2}}{2-\dfrac{3}{x}}$.

(a) $2-\dfrac{3}{x}$ (b) $\dfrac{2x+3}{x}$ (c) $2-\dfrac{x}{3}$ (d) None of the above.

13. Perform the indicated operations and simplify the complex fraction $\dfrac{\dfrac{1}{x}-\dfrac{1}{y}}{x-y}$.

(a) $-\dfrac{1}{xy}$ (b) $xy$ (c) $-xy$ (d) None of the above.

14. Perform the indicated operations and simplify the complex fraction $\dfrac{\dfrac{x}{y}-\dfrac{y}{x}}{\dfrac{1}{y}-\dfrac{1}{x}}$.

(a) $x-y$ (b) $x+y$ (c) $xy$ (d) None of the above.

15. Perform the indicated operations and simplify the complex fraction $\dfrac{\dfrac{x^2-y^2}{xy}}{\dfrac{3}{x}-\dfrac{3}{y}}$.

(a) $\dfrac{3}{x-y}$ (b) $\dfrac{x-y}{3}$ (c) $\dfrac{x+y}{3}$ (d) None of the above.

## Exercise Set 1.7

1. The expression $\left(\dfrac{a^{-3}b^7}{b^2a^{-8}}\right)^2$ is equal to

(a) $a^{10}b^{10}$ (b) $a^5b^5$ (c) $\dfrac{a^{10}}{b^{10}}$ (d) None of the above.

2. The expression $\left(\dfrac{x^{-7}x^4}{x^2}\right)^3$ is equal to

(a) $x^{15}$ (b) $x^{-15}$ (c) $x^{-3}$ (d) None of the above.

3. The expression $\left(\dfrac{(x^2y^3)^3}{x^4y^6}\right)$ is equal to

(a) $x^2y^3$ (b) $x^3y^2$ (c) $x^4y^{21}$ (d) None of the above.

4. The expression $\left(\dfrac{(x^2y^3)^3}{(xy)^{-4}}\right)$ is equal to

(a) $x^6y^5$ (b) $x^{10}y^{13}$ (c) $x^2y^{-5}$ (d) None of the above.

5. The expression $\left(\frac{4x^{-3}y^4}{36x^{-5}y^2}\right)^{-1}$ is equal to

(a) $9^{-1}x^{-2}y^{-2}$ (b) $9x^{-2}y^2$ (c) $9x^{-2}y^{-2}$ (d) None of the above.

6. The expression $\left(\frac{2x^{-4}y^3}{x^{-5}y^2}\right)^3$ is equal to

(a) $8x^3y^3$ (b) $2x^{-3}y^3$ (c) $8x^{-3}y^3$ (d) None of the above.

7. The expression $\left(\frac{a^{-2}-b^{-2}}{a^{-1}-b^{-1}}\right)$ is equal to

(a) $a^{-1}-b^{-1}$ (b) $\frac{b+a}{ab}$ (c) $\frac{1}{a-b}$ (d) None of the above.

8. The expression $\left(\frac{3^5+3^5+3^5}{3^4}\right)$ is equal to

(a) 9 (b) 311 (c) 39 (d) None of the above.

9. The expression $\left(\frac{(4\times10^{-4})(3\times10^{-3})}{6\times10^5}\right)$ is equal to

(a) $2\times10^{-12}$ (b) $2\times10^{-2}$ (c) $2\times10^{-7}$ (d) None of the above.

10. The expression $\left(\frac{(6\times10^{-5})(5\times10^{-3})}{3\times10^{-2}}\right)$ is equal to

(a) $10^{-5}$ (b) $10^{-13}$ (c) $10^{-10}$ (d) None of the above.

11. The expression $\left(\frac{(2.5\times10^{11})(8\times10^{-3})}{5\times10^4}\right)$ is equal to

(a) $4\times10^4$ (b) $4.5\times10^7$ (c) 4,000 (d) None of the above.

12. The expression $\frac{(3x-2y)^{-5}}{(3x-2y)^{-7}}$ is equal to

(a) $(3x-2y)^{-2}$ (b) $(3x-2y)^2$
(c) $(3x-y)^{-12}$ (d) None of the above.

13. The expression $\frac{(4x+2y)^6}{(2x+y)^{-2}}$ is equal to

(a) $64(2x+y)^4$ (b) $2^6(2x+y)^8$
(c) $2(2x+y)^8$ (d) None of the above.

14. The expression $\frac{(5x-6y)^5}{(10x-12y)^{-3}}$ is equal to

(a) $8(5x-6y)^8$ (b) $2^3(5x-6y)^2$
(c) $2^{-3}(5x-6y)^2$ (d) None of the above.

15. The expression $\dfrac{(4x-6y)^{-2}}{(6x-9y)^{-4}}$ is equal to

(a) $\dfrac{2}{3}(2x-3y)^{-2}$ (b) $\dfrac{4}{9}(2x-3y)^{2}$

(c) $\dfrac{81}{4}(2x-3y)^{2}$ (d) None of the above.

## Exercise Set 1.8

1. The expression $(\sqrt{3}-\sqrt{5})^2$ is equal to

(a) –2 (b) 8 (c) $8-2\sqrt{15}$ (d) None of the above.

2. The expression $(1+2\sqrt{5})(1-2\sqrt{5})$ is equal to

(a) –19 (b) 1 (c) 19 (d) None of the above.

3. The expression $(2+\sqrt{5})(1-\sqrt{5})$ is equal to

(a) $-3-\sqrt{5}$ (b) $2+\sqrt{5}$

(c) $2-3\sqrt{5}$ (d) None of the above.

4. The expression $\sqrt{98}+5\sqrt{32}+3\sqrt{8}$ is equal to

(a) $33\sqrt{2}$ (b) (c) (d) None of the above.

5. The expression $\sqrt[3]{256x^5}-\sqrt[3]{4x^5}$ is equal to

(a) $3x\sqrt[3]{4x^2}$ (b) $\sqrt[3]{252x^5}$ (c) $6x^2\sqrt{x}$ (d) None of the above.

6. The expression $\sqrt[3]{48x^3}-\sqrt[3]{6x^3}$ is equal to

(a) $x\sqrt[3]{3}$ (b) $x\sqrt[3]{8}$ (c) $x\sqrt[3]{6}$ (d) None of the above.

7. The expression $\dfrac{16}{\sqrt{3}+1}$ is equal to

(a) $\dfrac{16}{\sqrt{3}}+\dfrac{1}{\sqrt{3}}$ (b) $8(\sqrt{3}-1)$

(c) $8(\sqrt{3}+1)$ (d) None of the above.

8. The expression $\dfrac{18}{\sqrt{5}-\sqrt{3}}$ is equal to

(a) $9(\sqrt{5}+\sqrt{3})$ (b) $\dfrac{18}{\sqrt{5}-6}$

(c) $\dfrac{18}{\sqrt{5}}-6\sqrt{3}$ (d) None of the above.

9. The expression $\dfrac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}}$ is equal to

(a) $-1$ (b) $4+\sqrt{15}$ (c) $2+\sqrt{15}$ (d) None of the above.

10. The expression $\dfrac{\sqrt{3}+1}{\sqrt{3}-1}$ is equal to

(a) $2+\sqrt{3}$ (b) (c) (d) None of the above.

11. The expression $\sqrt[3]{-256x^8y^7}$ is equal to

(a) $4xy\sqrt[3]{4xy}$ (b) $4x^2y^2\sqrt[3]{4x^2y}$

(c) $-4x^2y^2\sqrt[3]{4x^2y}$ (d) None of the above.

12. The expression $\sqrt[4]{32x^{15}y^{11}}$ is equal to

(a) $2xy\sqrt[4]{2}$ (b) $4x^4y^3\sqrt[4]{xy}$

(c) $2x^3y^2\sqrt[4]{2x^3y^3}$ (d) None of the above.

13. The expression $\sqrt[3]{9x^5y^2}\sqrt[3]{9z^5}$ is equal to

(a) $3x^2z\sqrt[3]{3y^2z^2}$ (b) $3xyz\sqrt[3]{18x^2yz^2}$

(c) $3xz\sqrt[3]{3x^2y^2z^2}$ (d) None of the above.

14. The expression $\dfrac{27x^3y^2}{\sqrt{9xy}}$ is equal to

(a) $9x^{\frac{5}{2}}y$ (b) $9x^2y\sqrt{xy}$ (c) $3x^2y$ (d) None of the above.

15. The expression $\dfrac{\sqrt[3]{x^4y^5}}{\sqrt[3]{xy^2}}$ is equal to

(a) $xy$ (b) $x^3y^3$ (c) $x^2y$ (d) None of the above.

## Exercise Set 1.9

1. Solve for $x$ and $y$ the equation $(2x-1)+(3y+2)i=1-4i$.

(a) $x=0, y=2/3$ (b) $x=1, y=-2$

(c) $x=1/2, y=2$ (d) None of the above.

2. Solve for $x$ and $y$ the equations $\left(\frac{2}{3}x+5\right)+\left(\frac{1}{2}y-3\right)i=3-4i$.

(a) $x=0, y=2$ (b) $x=1, y=-2$

(c) $x=-3, y=-2$ (d) None of the above.

3. Multiply $(3+4i)(1-2i)$

(a) $11 - 2i$ (b) $11 + 2i$ (c) $2 - 11i$ (d) None of the above.

4. Multiply $(\sqrt{2} - 3i)(\sqrt{2} + 3i)$.

(a) 11 (b) $-7$ (c) $2 - 9i$ (d) None of the above.

5. Multiply $\left(\frac{1}{2} + \frac{\sqrt{3}}{2}i\right)(1 - i)$.

(a) $1 + i$ (b) $\frac{1}{2} + \frac{\sqrt{3}}{2}i$

(c) $\frac{1 + \sqrt{3}}{2} - \frac{1 - \sqrt{3}}{2}$ (c) None of the above.

6. Perform the indicated operations and simplify the expression $(1+ 2i)[(-7 + i) + 3(1 - 2i)]$.

(a) $6 + 13i$ (b) $19i$ (c) $6 - 13i$ (d) None of the above.

7. Perform the indicated operations and simplify the expression

$$(2 - 3i)\left[\left(\frac{3}{4} - \frac{1}{3}i\right) + \left(\frac{5}{4} + \frac{10}{3}i\right)\right].$$

(a) $2 - 3i$ (b) 13 (c) $13i$ (d) None of the above.

8. Express $\frac{1 - 2i}{1 + 2i}$ in the form $a + bi$.

(a) $\frac{3}{5} - \frac{4}{5}i$ (b) $1 - i$ (c) $-\frac{3}{5} - \frac{4}{5}i$ (d) None of the above.

9. Express $\frac{3 - 4i}{1 + i}$ in the form $a + bi$.

(a) $-1$ (b) $1 + 2i$ (c) $-\frac{1}{2} - \frac{7}{2}i$ (d) None of the above.

10. Find the reciprocal of $4 + 3i$.

(a) $\frac{1}{4} + \frac{1}{3}i$ (b) $\frac{4}{13} - \frac{3}{13}i$ (c) $\frac{4}{7} - \frac{3}{7}i$ (d) None of the above.