

EXERCISE A

Simplify (divide).

1) $\frac{6xy^2 - 3xy + 2x^2y}{xy}$

2) $(5ab^2 - 4ab + 7a^2b)(ab)^{-1}$

3) $\frac{9a^3b^2 - 18a^2b^3}{3a^2b}$

4) $\frac{5xy^2 - 6y^3 + 3x^2y^3}{xy}$

5) $(28c^3d - 42cd^2 + 56cd^3) \div (14cd)$

6) $(a^3b^2 - a^2b + 2a)(-ab)^{-1}$

7) $(x^2 - 10x - 24) \div (x + 2)$

8) $(3a^4 - 6a^3 - 2a^2 + a - 6) \div (a + 1)$

9) $(z^5 - 3z^2 - 20)(z - 2)^{-1}$

10) $\frac{x^3 + 13x^2 - 12x - 8}{x + 2}$

11) $(12y^2 + 36y + 15) \div (6y + 3)$

12) $\frac{9b^2 + 9b - 9}{3b - 2}$

EXERCISE B

Simplify (divide using synthetic division).

13) $(g^2 + 8g + 15)(g + 3)^{-1}$

14) $\frac{y^3 + 3y^2 - 5y - 4}{y + 4}$

15) $\frac{m^3 + 3m^2 - 7m - 21}{m + 3}$

16) $(t^5 - 3t^2 - 20)(t - 2)^{-1}$

17) $(y^5 + 32)(y + 2)^{-1}$

18) $(2c^3 - 3c^2 + 3c - 4) \div (c - 2)$

19) $(2b^3 + b^2 - 2b + 3)(b + 1)^{-1}$

20) $\frac{x^5 - 7x^3 + x + 1}{x + 3}$

21) $\frac{3c^5 + 5c^4 + c + 5}{c + 2}$

EXERCISE C

Divide using whatever method seems appropriate.

22) $\frac{4x^3 + 5x^2 - 3x + 1}{4x + 1}$

23) $\frac{x^3 - 3x^2 + x - 3}{x^2 + 1}$

24) $(x^3y + xy^3 - 2xy) \div (xy)$

25) A magician gives the following instructions to a volunteer:

- ◆ Choose a number and multiply it by 4.
- ◆ Find the sum of your number and 15, then add it to the product you got from the first step.
- ◆ Now divide the total by the sum of your number and 3.

What number will the volunteer always have at the end? Write a mathematical expression to represent the three steps, simplify it, then explain why the volunteer will always get the same number.



ANSWERS:

1) $6y - 3 + 2x$

3) $3ab - 6b^2$

5) $2c^2 - 3d + 4d^2$

7) $x - 12$

9) $z^4 + 2z^3 + 4z^2 + 5x + 10$

11) $2y + 5$

13) $g + 5$

15) $m^2 - 7$

17) $y^4 - 2y^3 + 4y^2 - 8y + 16$

19) $2b^2 - b - 1 + \frac{4}{b+1}$

21) $3c^4 - c^3 + 2c^2 - 4c + 9 - \frac{13}{c+2}$

23) $x - 3$

25) 5