

Typos #6 & 15

For # 1 - 6, factor Completely.

1. $y^3 + 9y^2 + 18y$

$y(y^2 + 9y + 18)$

$y(y+6)(y+3)$

2. $9c^4d - 21c^3d + 6c^2d$

$3c^2d(3c^2 - 7c + 2)$

3. $6x^2 - x - 40$

~~249~~
 ~~-1~~

4. $4x^2 - 36$

$4(x^2 - 9)$

$4(x+3)(x-3)$

5. $98a^3 - 50a$

$2a(49a^2 - 25)$

$2a(7a+5)(7a-5)$

6. $-x^2 + 11x + 42$

$-(x^2 - 11x - 42)$

$-(x-14)(x+3)$

For # 7 - 10, (a) state any restrictions on the variable and (b) simplify each expression.

7. $\frac{4m^2 - 36}{m - 3}$

$m - 3 \neq 0$

$m \neq 3$

8. $\frac{x^2 - 11x + 10}{100 - x^2}$

$(10-x)(10+x) \neq 0$

$x \neq 10$ $x \neq -10$

9. $\frac{24c - 15}{8c^2 - 13c + 5}$

~~10~~
 ~~-8~~
 ~~-13~~

$8c^2 - 8c - 5c + 5 \neq 0$

$8c(c-1) - 5(c-1) \neq 0$

$(8c-5)(c-1) \neq 0$

$c \neq 5/8$ $c \neq 1$

10. $\frac{14 - 2x}{6 - 4x}$

$6 - 4x \neq 0$

$-4x \neq -6$

$x \neq 3/2$

For # 11 – 15, perform the indicated operation and leave your answer in simplest form.

11. $\frac{4x^2-9}{x^2-10x+25} \div \frac{2x-3}{x-5}$

$$\frac{(2x+3)(2x-3)}{(x-5)(x-5)} \cdot \frac{x-5}{2x-3} = \boxed{\frac{2x+3}{x-5}}$$

12. $\frac{x^2+3x-10}{6x^2-24x} \cdot \frac{2x^2-4x}{x+5}$

$$\frac{(x+5)(x-2)}{\cancel{6x}(x-4)} \cdot \frac{2x(x-2)}{\cancel{x+5}}$$

$$\boxed{\frac{(x-2)(x-2)}{x-4}}$$

13. $\frac{x^2-3x-10}{x^2-3x-28} \div \frac{x^2-x-6}{x^2+x-12}$

$$\frac{(x-5)(x+2)}{(x-7)(x+4)} \cdot \frac{(x+4)(x-3)}{(x-3)(x+2)}$$

$$\boxed{\frac{x-5}{x-7}}$$

$$\frac{6}{7}$$

14. $\frac{2x^2+7x+3}{x-4} \cdot \frac{x^2-16}{x^2+8x+15}$

$$\frac{2x^2+6x+x+3}{2x(x+3)+1(x+3)} \cdot \frac{(x+4)(x-4)}{(x+5)(x+3)}$$

$$\frac{(2x+1)(x+3)}{x-4} \cdot \frac{(x+4)(x-4)}{(x+5)(x+3)}$$

$$\boxed{\frac{(2x+1)(x+4)}{(x+5)}}$$

15. $\frac{x^2+6x+9}{2x^2-18} \cdot \frac{3x-9}{2x^2+4x-6} = 2(x^2+2x-3)$

$$\frac{(x+3)(x+3)}{2(x+3)(x-3)} \cdot \frac{3(x-3)}{2(x+3)(x-1)}$$

$$\boxed{\frac{3}{4(x-1)}}$$

Applications

16. How do you find the area of rectangle? $A = L \cdot W$

17. How do you find the volume of a rectangular solid? $V = L \cdot W \cdot H$

18. How do you find the base of a parallelogram if you are given the area and the height?

$$\frac{A}{h} = \frac{bh}{h}$$

$$b = A \div h$$