(1 – 14)   Find the Domain

1. $f(x) = |3x - 2| + \pi - \sqrt{7}\, x$

2. $f(x) = \pi - \sqrt{7}\, x$

3. $f(x) = \dfrac{x}{x+2}$

4. $f(x) = \dfrac{3}{x-2}$

5. $f(x) = \sqrt{4x - 5}$

6. $f(x) = \sqrt{3 - 2x}$

7. $f(x) = \sqrt{6 + x}$

8. $f(x) = \dfrac{x}{x^2 - 3x + 2}$

9. $f(x) = \sqrt{x^2 - 4x + 3}$

10. $f(x) = \dfrac{x}{\sqrt{6 + x}}$

11. $f(x) = \dfrac{5}{\sqrt{3 - x}}$

12. $f(x) = \dfrac{\sqrt{x - 2}}{\sqrt{x^2 - 3x + 2}}$

13. $f(x) = \dfrac{\sqrt{x + 2}}{x^2 + 3x + 2}$

14. $f(x) = \dfrac{3}{(x - 3)\sqrt{x + 2}}$

15.   Let $f(x) = 2x^2 - 3$ and $g(x) = 5x + 4$. Find each of the following and give the **domain**

     a) $(f + g)(x)$ *b)* $(f - g)(x)$ *c)* $(fg)(x)$ *d)* $\left(\dfrac{f}{g}\right)(x)$

(16 – 18)   Find and simplify the difference quotient $\dfrac{f(x + h) - f(x)}{h}$ for the given function

16. $f(x) = -3x + 4$

17. $f(x) = 3x^2 - 2x$

18. $f(x) = 2x^2 - 3x + 1$