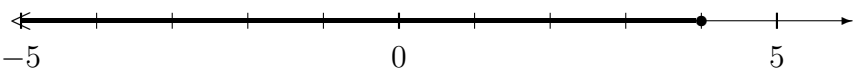
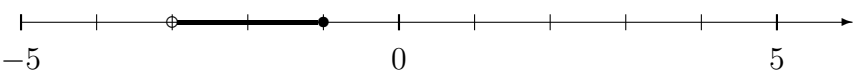
Exam 1 Review Solutions

MAC1105 Summer B 2012

1. a) $-2, 0, -\sqrt{16}, 3^3$ b) $0, 3^3$ c) $-2, \frac{-4}{9}, 0, -\sqrt{16}, 12.2, 0.\bar{8}, 3^3$ d) $\frac{\pi}{6}, \sqrt{5}$
   e) 3^3 f) $-2, \frac{-4}{9}, 0, \pi/6, -\sqrt{16}, 12.2, 0.\bar{8}, 3^3, \sqrt{5}$
2. a) False $x^4 \cdot x^2 = x^6$ b) True c) True d) False; undefined
   e) False; not a polynomial
3. $|1 - (-3)| = |-3 - 1| = 4$
4. a) $\frac{7}{12}$ b) 25 c) -4.6 d) 0.45 e) $-\frac{8}{125}$
5. a) $-\frac{y^2}{3x^5}$ b) $\frac{16x^6y^4}{9}$
6. .a) $-\pi + 5 = 5 - \pi$ b) $\sqrt{2} - 1$
7. a) $\frac{-1}{7}$ b) -9 c) $\frac{15}{13}$
8. a) $\{-3, -2, -1, 0, 2, 4, 5, 7, 9\}$ b) $\{-1, 0, 2\}$
9. a) distributive b) associative property of multiplication c) commutative property of addition
10. rational numbers, real numbers
11. a) $(-\infty, 4]$



b) $(-3, -1]$



12. a) $7x^4-x^3-3x^2+3x-7$ b) $-y^2+5y-27$ c) $-8x^5-10x^2$ d) $x^4-6x^2y+9y^2$

13. a) $3x^2y^3(3-5x^2y^2)$ b) $(4x+1)^2$ c) $(3x-5)(x+1)$ d) $y^2(y-6)(y-5)$

    e) prime f) $(x-1)(x-3)$ g) $4(x-3)(x+3)(x+2)$

    h) $(3x-y)(9x^2+3xy+y^2)$ i) $(2x+5)(4x^2-10x+25)$ j) $(3x-5)(3x+5)$

    k) $(x+2)(x-2)(x^2+4)$

14. a) $\dfrac{2xy}{1-3y}$ b) $\dfrac{y-1}{y+1}$ c) $\dfrac{3}{5x(x+2)}$ d) $\dfrac{4(x+1)^2}{x^2}$

15. $\dfrac{4-x}{x-2}$ b) $\dfrac{-x^2+3x+13}{(x-2)(x+4)(x+1)}$ c) $\dfrac{x+2}{x}$ d) $\dfrac{x}{(x+1)^2}$

16. a) quotient: $2x^2+2x+8$, remainder: 40

    b) quotient: $3x^2-7x+15$, remainder: -32

    Formula to check: Divisor $\times$ Quotient + Remainder = Dividend