1) State the property of real numbers being used: $3x + 2y = 2y + 3x$

   commutative prop. of addition

2) State the property of real numbers being used: $(a + b)(a - b) = (a - b)(a + b)$

   Commutative prop. of mult

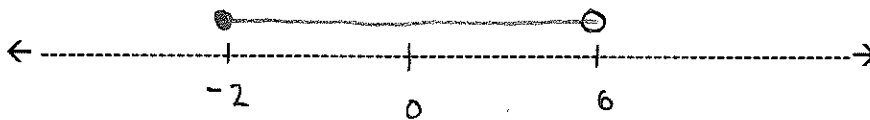3) Rewrite the expression using the given property of real numbers:

   Associative Property of multiplication, $7(3x) = \underline{(7 \cdot 3)x}$

4) Rewrite the expression using the given property of real numbers:
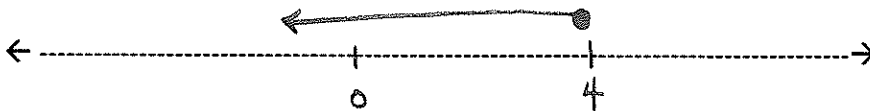
   Distributive Property, $5x + 5y = \underline{5(x+y)}$

5) Express the interval in terms of inequalities, and then graph the interval.

   $[-2, 6)$ $-2 \le x < 6$

6) Express the interval in terms of inequalities, and then graph the interval.
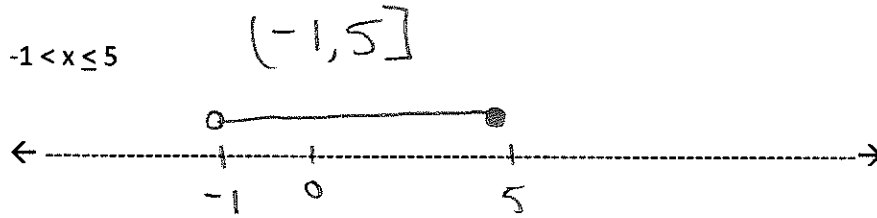
   $(-\infty, 4]$ $-\infty < x \le 4$ or $x \le 4$

7) Express the inequality in interval notation, and then graph the corresponding interval.
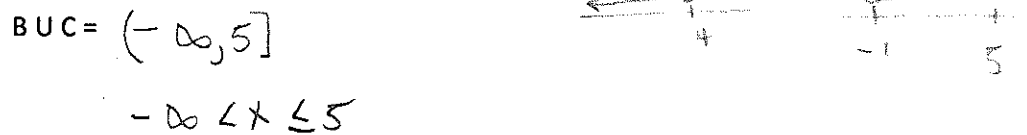
   $x \ge 5$ $5 \le x < 6$

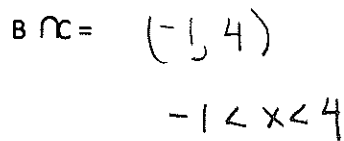8) Express the inequality in interval notation, and then graph the corresponding interval.

-1 < x ≤ 5 $(-1, 5]$

9) Find the indicated set if: A = { 1, 2, 3, 4, 5, 6, 7}   B = {x| x < 4}   C = {x| -1 < x ≤ 5}

B U C = $(-\infty, 5]$

$-\infty < x \leq 5$

10) Find the indicated set if: A = { 1, 2, 3, 4, 5, 6, 7}   B = {x| x < 4}   C = {x| -1 < x ≤ 5}

B ∩ C = $(-1, 4)$

$-1 < x < 4$

11) Find the indicated set if: A = { 1, 2, 3, 4, 5, 6, 7}   B = {x| x < 4}   C = {x| -1 < x ≤ 5}

A ∩ B ∩ C   1, 2, 3

12) Given: { 0, -10, $\sqrt{50}$, $\frac{22}{7}$, 0.583, $\sqrt{7}$, 1.32⬚, $-\frac{13}{15}$, $\sqrt{16}$, 3.14, $\frac{15}{3}$ },
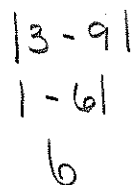
whole

List the elements in the set of natural numbers:___ $\sqrt{16}$, $\frac{15}{3}$, 50, 0 ___

13) Given: { 0, -10, 50, $\frac{22}{7}$, 0.583, $\sqrt{7}$, 1.32⬚, $-\frac{13}{15}$, $\sqrt{16}$, 3.14, $\sqrt[3]{2}$ },

List the elements in the set of irrational numbers

$\sqrt{7}$ $\sqrt[3]{2}$

14) Evaluate: | 3 - | -9 | |

$|3 - 9|$

$|-6|$

6
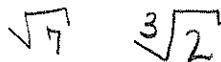
15) Evaluate: $1 - |\,1 - |-1|\,|$

$1 - |\,1 - 1\,|$

$1 - 0$

1

16) Evaluate: $2^{-3} - 3^{-2}$

$\dfrac{1}{8} - \dfrac{1}{9} = \dfrac{9}{72} - \dfrac{8}{72} = \dfrac{1}{72}$

17) Evaluate: $\sqrt[3]{-125}$

-5

18) Evaluate: $216^{-\frac{1}{3}}$

$\dfrac{1}{\sqrt[3]{216}} = \dfrac{1}{6}$

19) Evaluate: $64^{\frac{2}{3}}$

$= \left(\sqrt[3]{64}\right)^2$

$4^2 = 16$

20) Evaluate: $\dfrac{\sqrt{242}}{\sqrt{2}} = \sqrt{\dfrac{242}{2}} = \sqrt{121} = 11$

21) Evaluate: $\sqrt[4]{4}\ \sqrt[4]{324} = 6$

$\sqrt[4]{4 \cdot 324}$

$4\ 81$

$33\ 33$

22) Evaluate: $2^{\frac{1}{2}} 8^{\frac{1}{2}}$

$$\sqrt{2 \cdot 8} = 4$$

23) Evaluate: $\sqrt{2} + \sqrt{50}$

$$= \sqrt{2} + 5\sqrt{2}$$

$$= 6\sqrt{2}$$

24) Evaluate: $\sqrt{75} + \sqrt{48}$

$$5\sqrt{3} + 4\sqrt{3}$$

$$9\sqrt{3}$$

25) Rewrite $\sqrt[3]{7^2}$ as an exponential expression

$$7^{2/3}$$

26) Rewrite $11^{\frac{-3}{2}}$ as a radical expression

$$\frac{1}{\sqrt{11^3}}$$

27) Rationalize the denominator: $\frac{1}{\sqrt{10}}$

$$\frac{\sqrt{10}}{10}$$

28) Rationalize the denominator: $\sqrt{\frac{5}{12}}$

$$= \frac{\sqrt{5}}{2\sqrt{3}}$$

$$= \frac{\sqrt{15}}{6}$$

29) Rationalize the denominator: $\dfrac{x \cdot y^{3/5}}{y^{\frac{2}{5}} \cdot y^{3/2}}$

$$\dfrac{xy^{3/5}}{y}$$

30) Simplify: $\dfrac{y^2(2x)^4}{x^3}$

$$16x^3$$

31) Simplify: $(a^2)^{-3}(a^3b)^2(b^3)^4$

$$\dfrac{a^6b^2b^{12}}{a^6} = b^{14}$$

32) Simplify: $(3xy^2)^3(\tfrac{2}{3}x^{-1}y)^2$

$$27x^3y^6 \cdot \tfrac{4}{9}x^2y^2$$

$$12xy^8$$

33) Simplify: $\left(\dfrac{r^2s^{\frac{4}{3}}}{r^{\frac{1}{3}}s^{\frac{1}{3}}}\right)^6$

$$\left(r^{5/3}s^{1/3}\right)^6$$

$$r^{10}s^2$$

34) Simplify: $\sqrt[3]{(x^3y)^2y^4}$

$$\sqrt[3]{x^6y^6}$$

$$x^2y^2$$

35) Simplify: $\sqrt{x^2y^4}$

xy^2

36) Simplify: $\left(\frac{9x^3y^4}{y^{-3}}\right)^{\frac{1}{2}}$

$3x^{3/2}y^2$

37) Simplify: $\left(\frac{x^{-2}y^3}{x^2y}\right)^{-1/2}\left(\frac{x^3y}{y^{\frac{1}{2}}}\right)^2$

$\frac{x^1 y^{-\frac{3}{2}}}{x^{-1} y^{-1/2}} \cdot \frac{x^6 y^2}{y} = x^2 y^{-1} x^6 y^1 = x^8$

38) Simplify: $\frac{8r^{1/2}s^{-3}}{2r^{-2}s^4}$

$\frac{4 r^{5/2}}{s^7}$

39) Simplify: $\left(\frac{ab^2c^{-3}}{2a^3b^{-4}}\right)^{-2}$

$\left(\frac{b^6}{2a^2c^3}\right)^{-2}$

$\frac{4a^4c^6}{b^{12}}$