Section P1

Evaluate = substitute, replace

Evaluate x^2-3x+4 if $x=6$

* substitute $6^2-3(6)+4=22$

Ex 6. p.10 Write without absolute value signs

$|3|$ $|-37+6|$ $\frac{|x|}{x}$ if $x<0$

$$\frac{|x|}{x} \qquad x < 0$$

$$x = -5$$

$$\frac{|-5|}{-5} = \frac{5}{-5} = -1$$

$-1 \cdot |-4| = -4$

$-1 \cdot 4 = -4$

$|3-2|$

$|1|$

$|2-3|$

$|-1|$

1

$$|\sqrt{3} - 1| = \sqrt{3} - 1 \quad (\sim .7)$$

$$|1 - \sqrt{3}| = \sqrt{3} - 1$$

$$|-.7| \quad 1.7|$$

Sets

Set = A group of objects.

Element = each object in a set.

The set of integers from 1 to 6

Write sets 2 ways:

Roster notation:

$\{1, 2, 3, 4, 5, 6\}$

uses braces

Set builder notation:

starts with: $\{x/x$

$\{x/x$ are the integers from 1 to 6$\}$

or

$\{x/x$ is $1,2,3,4,5,6\}$

ϕ

The set of x

such that

(Intersection of Sets) $A \cap B$

Elements common to all sets

Set $A = \{AUGUST\}$

Set $B = \{SEPTEMBER\}$

$A \cap B = \{S, T\}$

*not doing

no elements = empty set or null set

written as: { } or $\emptyset$

Set $A = \{3, 5, 7\}$

Set $B = \{2, 4, 6\}$

$A \cap B = \{\ \}$

Union of sets: $A \cup B$

Combine everything into one set. *Items only appear once in answer:

Set $A = \{1, 2, 3\}$

Set $B = \{2, 3, 4\}$

$A \cup B = \{1, 2, 3, 4\}$

*not covering

Do CPG

$|1-\sqrt{2}|$ $|\pi-3|$ $\frac{|x|}{x}$ $x>0$

$\sqrt{2}-1$ $\pi-3$ 1

P. 13

$4x^3 + 2x - 6 - 1(-2x^2 - 4x + 3)$

$4x^3 + 2x - 6 + 2x^2 + 4x - 3$

$4x^3 + 2x^2 + 6x - 9$

Do Ex 8 and CP 8

Do Ex 9 and CP 9

CP 8

$7(4x^2+3x)+2(5x^2+x)$

$28x^2+21x+10x^2+2x$

$38x^2+23x$

$$6+4[7-1(x-2)]$$

$$6+4(7-x+2)$$

$$6+4(9-x)$$

$$6+36-4x$$

$$42-4x \Rightarrow -4x+42$$

Simplify

$14x^2 + 5 - [7(x^2 - 2) + 4]$

You can only add or subtract like terms.

Like terms - have the same variable to the same power.

$4x^2 + 4x =$

$8x^2 + 4x^2 =$

Multiply * Add the exponents

$$a^2b^4 \cdot a^3 = a^{2+3}b^4 = a^5b^4$$

Division * Subtract the exponents

$$\frac{a^5bc^2}{a^2c} = a^{5-2}bc^{2-1} = \boxed{a^3bc}$$

*A variable or # without an exponent is to the 1st power

$$2 = 2^1 = \frac{2}{1}$$

Anything to the zero power = 1

$5^0 = 1$ $\quad x^0 = 1$

a) $a^2 b^0 c^3 = a^2 \cdot 1 \cdot c^3 = a^2 c^3$

b) $(a^2 b^3)^0 = 1$

c) $\dfrac{a^2 b^0 c^3}{(a^2 b^3)^0} = \boxed{a^2 c^3}$

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Negative exponents

Make the exponent positive by moving only that item from the numerator to the denominator or from the denominator to the numerator.

$4^{-2} = \frac{1}{4^2} = \frac{1}{16}$ $\qquad \frac{1}{5^{-2}} = 5^2 = 25$

$$\frac{2^{-3} m^2 n^{-1}}{a^{-2} b} = \frac{a^2 m^2}{2^3 b n} = \frac{a^2 m^2}{8bn}$$

$(-2)^4 = -2 \cdot -2 \cdot -2 \cdot -2 = 16$

$(-2)^3 = -2 \cdot -2 \cdot -2 = -8$

$-1 \cdot 2^4 = -1 \cdot 2^4 = -16$

$-1 \cdot 2^3 = -1 \cdot 2^3 = -8$

Exponents raised to a power

Multiply the powers for each component

$$(x^2)^4 = x^{2 \cdot 4} = x^8$$

$$\left(2^1 a^2 b^{-3}\right)^3 = \left(\frac{2^1 a^2}{b^3}\right)^3 = \frac{2^{1 \cdot 3} a^{2 \cdot 3}}{b^{3 \cdot 3}} = \frac{2^3 a^6}{b^9}$$

$$= \frac{8a^6}{b^9}$$

$\left(-\frac{1}{2}\right)^4$ = Put the negative sign with the numerator

$-\frac{1}{2} \cdot -\frac{1}{2} \cdot -\frac{1}{2} \cdot -\frac{1}{2} = \frac{1}{16}$

$\left(\frac{x}{3}\right)^{-4}$ Solve 2 ways:

@ $\frac{x^{1 \cdot -4}}{3^{1 \cdot -4}} = \frac{x^{-4}}{3^{-4}} = \frac{3^4}{x^4} = \frac{81}{x^4}$

(b) $\left(\frac{x}{3}\right)^{-4} = \left(\frac{3}{x}\right)^{4} = \frac{3^{1\cdot 4}}{x^{1\cdot 4}} = \frac{3^4}{x^4} = \frac{81}{x^4}$

Inverse gets rid of negative exponent

Scientific Notation

6.34×10^5

* The value of the number must be $1 \leq x < 10$. (Almost always place the decimal between the first two numbers

$505 \times 10^4 = 5.05 \times 10^6$

$0.634 = 6.34 \times 10^{-1}$

not ≥ 1

$(7 \times 10^3)(3 \times 10^{-5})$

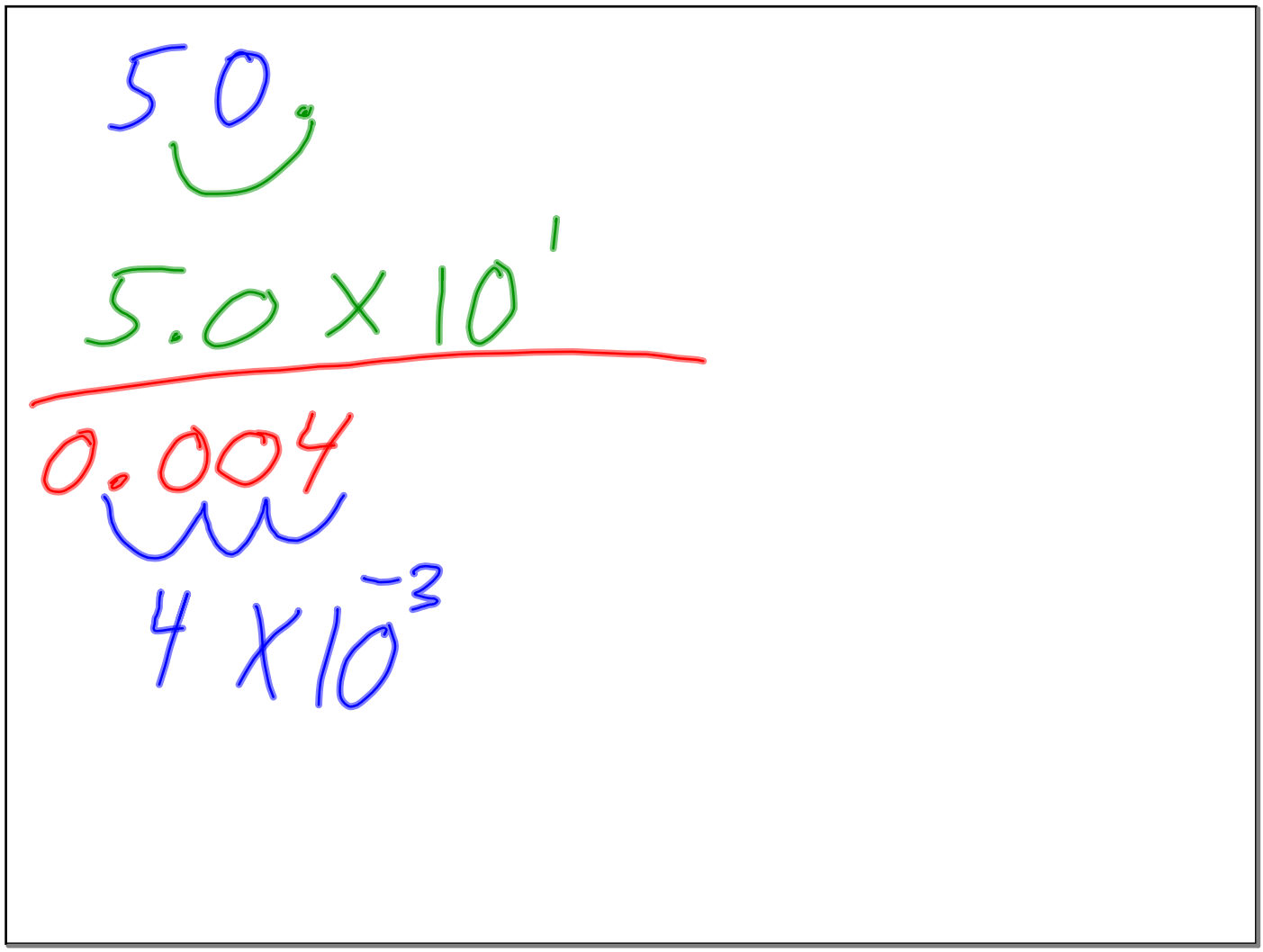
21×10^{-2} 2.1×10^{-1}

$$\frac{4.6 \times 10^{2}}{9.2 \times 10^{-8}} =$$

$$.5 \times 10^{2--8}$$

$$.5 \times 10^{10}$$

$$= 5 \times 10^{9}$$


50.
5.0 x 10^1
0.004
4 x 10^-3

325.6×10^{2}

3.256×10^{4}

0.00047×10^{-5}

4.7×10^{-8}

583×10^{-5}

.00583

.00583

5.643×10^{6}

5,643,000

$(7 \times 10^3)(4 \times 10^2)$

28×10^5

2.8×10^6

$(2 \times 10^3)(8 \times 10^{-7})$

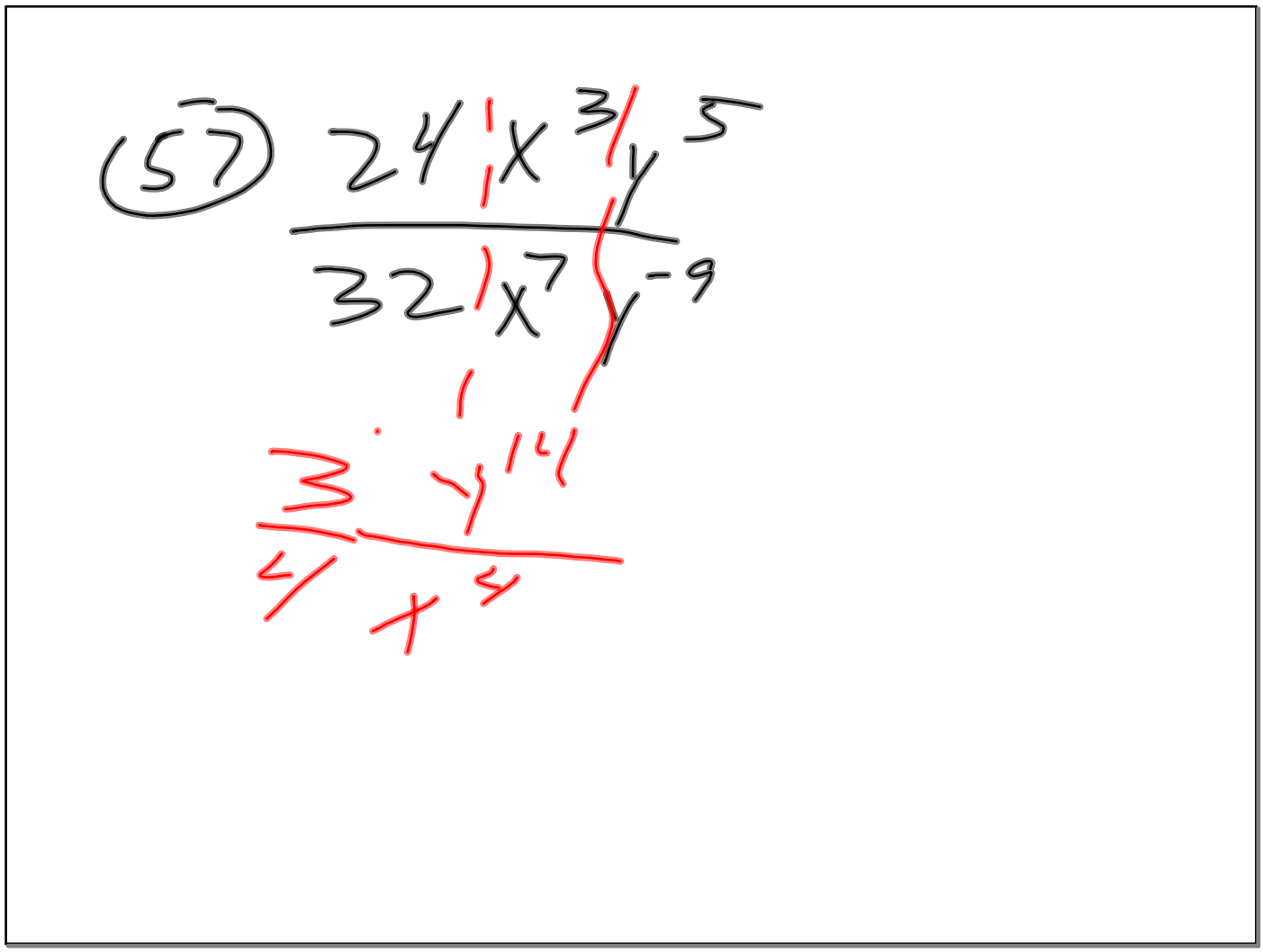
1.6×10^{-4}

1.6×10^{-3}

(40) $36x^8$

(42) $-\frac{216}{y^3}$

(44) $-27x^{12}y^{18}$


(57)
24 x^3 y^5
32 x^7 y^-9
3 y^14
4 x^4