baseline data

Determine whether the statement is true or false.

1) $24 \leq 9$

$< \rightarrow$ less than
$\leq \rightarrow$ less than or equal
$> \rightarrow$ greater than
$\geq \rightarrow$ greater than or equal

24 is less than or equal
to 9 $\longrightarrow$ FALSE

Evaluate the algebraic expression for the given value or values of the variable(s).

2) $9x - 7;$ $x = -2$

USE ( ) for variable.
Replace ( ) w/ -2

$9(-2) - 7 = \boxed{-25}$

Evaluate the exponential expression.

3) $(-4)^3$

The exponent is on
the ( ) which includes
the $-$ sign.
$(-4)^3 = -4 \cdot -4 \cdot -4 = \boxed{-64}$

4) -5^4

The exponent is only
on the base 5, Not -5.
$-(5 \cdot 5 \cdot 5 \cdot 5) = \boxed{-625}$

5) 9^0 All bases raised to
the zero power equal 1.
$9^0 = \boxed{1}$

6) 3^{-4} All negative exponents mean
1 over the positive exponent $\rightarrow \dfrac{1}{3^4} = \dfrac{1}{3 \cdot 3 \cdot 3 \cdot 3} = \dfrac{1}{81}$

baseline data Evaluate the expression or indicate that the root is not a real number.

Evaluate the rational exponent expression.

7) $25^{1/2}$

For fraction exponents
The numerator is power
and the denominator is
the root.

$25^{1/2} \rightarrow \sqrt[2]{25^1}$

OR $\sqrt{25} = \boxed{5}$

Simplify by reducing the index of the radical.

8) $\sqrt[15]{x^9}$

See above, 9 is the
numerator and 15
is the denominator.

$x^{9/15} = \boxed{x^{3/5}}$

$\dfrac{9 \div 3}{15 \div 3} = \dfrac{3}{5}$

9) $-\sqrt{529}$ Keep in front of
final answer.

$-\sqrt{529} = \boxed{-23}$

10) $\sqrt{-81}$ Since $\sqrt{\ }$ means
? * ? = -81 and No
Real number times
itself equals a negative
$\rightarrow$ No Real Answer

11) $\sqrt{64 + 36}$ Simplify under
radical sign, then take
the square root.

$\sqrt{64 + 36} = \sqrt{100} = \boxed{10}$

baseline data

12) The formula $C = \frac{5}{9}(F - 32)$ expresses the

relationship between Fahrenheit temperature, F, and Celsius temperature, C. Use the formula to convert 113°F to its equivalent temperature on the Celsius scale.

Replace F with 113.

$C = \frac{5}{9}\left((113) - 32\right)$

$C = \frac{5}{9}(81) = \boxed{45}$

Perform the indicated operations. Write the resulting polynomial in standard form.

13) $(9x^6 + 13x^5 + 6) - (2x^6 - 16x^5 - 5)$

when subtract is before a ( ), rewrite all terms in ( ) with opposite signs before combining terms.

$9x^6 + 13x^5 + 6 - 2x^6 + 16x^5 + 5$

$= \boxed{7x^6 + 29x^5 + 11}$

Find the product.

14) $(x + 4)(x + 9)$

From Algebra 1

FOIL

F $x \cdot x = x^2$
O $x \cdot 9 = 9x$
I $4 \cdot x = 4x$ $\Big\rangle 13x$
L $4 \cdot 9 = 36$

$\boxed{x^2 + 13x + 36}$

OR

15) $(3x - 5)(x + 6)$

USE A GRID
(BOX)

	3x	-5
x	$3x^2$	-5x
6	18x	-30

$\boxed{3x^2 + 13x - 30}$

3

Factor out the greatest common factor.

16) $2x + 6$

Since no variable in second term factor Greatest common factor of 2 And 6 (which is 2)

$\underline{\underline{2}} \cdot x + \underline{\underline{2}} \cdot 3$

$2(x+3)$

17) $5x^2 - 35x$

Since variable in both terms, factor number and variable.

$\underline{\underline{5 \cdot x}} \cdot x - \underline{\underline{5 \cdot x}} \cdot 7$

$5x(x-7)$

baseline data

Solve the linear equation.

18) $5x - 3 = 42$

To solve, add 3
Divide by 5

$5x - 3 = 42$
$ +3 \quad +3$
$\overline{5x = 45}$
$\frac{5x}{5} \quad \frac{45}{5}$

$x = 9$

19) $9x - (3x - 1) = 2$

Distribute Subtraction First. Collect terms.

$9x - 3x + 1 = 2$
$6x + 1 = 2$
$6x = 1$

$x = \frac{1}{6}$

4

20) $3x - 1 = 5 - 9x$

To Solve first collect variables on one side.

$$3x - 1 = 5 - 9x$$
$$\underline{+9x \qquad +9x}$$
$$12x - 1 = 5$$
$$12x = 6$$
$$x = \frac{6}{12} = \boxed{\frac{1}{2}}$$

Always reduce fractions to lowest terms.

baseline data

21) $\dfrac{x}{3} = \dfrac{x}{5} + \dfrac{7}{3}$

To solve, clear denominators (multiply all terms by all denominators).

$$3 \cdot 5 \quad 3 \cdot 5 \quad 3 \cdot 5 \qquad \overline{3 \cdot 5}$$
$$\frac{x}{3} = \frac{x}{5} + \frac{7}{3}$$
$$5x = 3x + 35$$

$$5x = 3x + 35$$
$$\underline{-3x \quad -3x}$$
$$2x = 35$$
$$x = \boxed{\frac{35}{2}}$$

baseline data

Solve the absolute value equation or indicate that the equation has no solution.

→ means the right (+) and Left (−) distance from zero. This means There will be **two (2)** Answers.

22) $|x| = 7$

Absolute value is 7

7 to the right of zero is 7.

7 to the left of zero is −7.

$|x| = 7$ → $x = \{-7, 7\}$

23) $|x - 9| = 3$

→ 3 to right and left of zero (+3, −3)

$x - 9 = {}^+3$ $x - 9 = -3$
$x = 12$ $x = 6$

$x = \{6, 12\}$

Solve the formula for the specified variable.

24) $A = \dfrac{1}{2}bh$ for b

Clear denominator → MULTIPLY BY Denominator.

$2\left(A = \frac{1}{2}bh\right)$

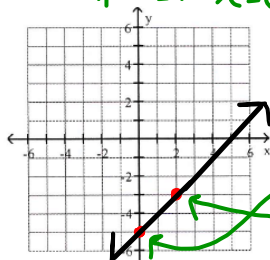$\dfrac{2A}{h} = \dfrac{bh}{h}$ → $\dfrac{2A}{h} = b$

baseline data

25) $y = x - 5$
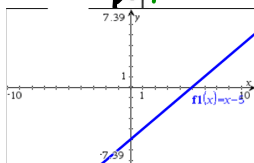
To Graph any line, must have two points (Any two points).

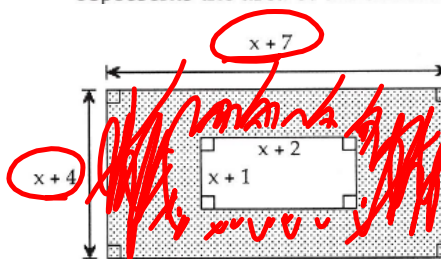Choose any x, calculate the y for that x.

Examples: $x=0 \to y=0-5=-5$

$x=2 \to y=2-5=-3$

x	y
0	-5
2	-3

x	f1(x):= ▼
	x-5
0.	-5. ✓
1.	-4. ✓
2.	-3. ✓

26) Write a polynomial in standard form that represents the area of the shaded region.

$x + 7$

$x + 4$

$x + 2$

$x + 1$

$(x+4)(x+7)$ gives total area. Must take out (Subtract) the non-shaded area which is $(x+2)(x+1)$

$(x+4)(x+7) - (x+2)(x+1)$

$= x^2 + 11x + 28 - (x^2 + 3x + 2)$

$= x^2 + 11x + 28 - x^2 - 3x - 2$

$= 8x + 26$

baseline data q1-1

1) B

2) –39

3) –216

4) –9

5) 1

6) $\dfrac{1}{25}$

7) 8

8) $\sqrt[5]{x^3}$ OR $x^{3/5}$

9) –21

10) Not a real number

11) 13

12) 5°C
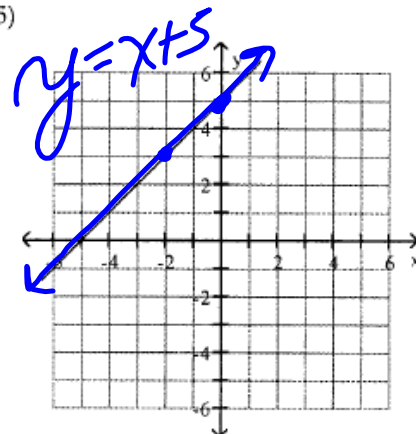
13) $6x^6 + 14x^4 - 16$

14) $x^2 + 12x + 32$

15) $4x^2 - 41x - 84$

16) $3(x - 9)$

17) $5x(x + 4)$

18) {9}

19) $\left\{ \dfrac{1}{3} \right\}$

20) $\left\{ -\dfrac{5}{4} \right\}$

21) $\left\{ -\dfrac{32}{5} \right\}$

22) {–3, 3}

23) {2, 16}

24) $h = \dfrac{2A}{b}$

25)

$y = x + 5$

26) $3x + 14$