Evaluate each for $w = -8$ $x = -6$ $y = 12$ $z = 4$

1. $-x - 2z^2 + wy$

2. $w^2 - xz$

3. $-2|w - y| - |x|$

Simplify each.

4. $9m^2n + 3mn^2 - 5m^2n + 8m^2n^2 - mn^2 - 11m^2n^2 + m^2n$

5. $5w(3w + 2) - 8w - 4(6w^2 - 7w + 3) + 7w - 10$

6. The number of pages Elaine reads varies directly with the amount of time she spends reading. It takes her 20 minutes to read 18 pages.
a) State the variation constant, including units.

b) Write a direct variation equation. Define your variables.

c) Find the number of minutes it will take her to read 100 pages. Round to the nearest hundredth as needed.

7.   Is each table an example of Direct Variation? If the table represents Direct Variaton write a variation equation and find the value of x when $y = 432$.

a)

x	y
4.8	12
-8	-20
36	90
50	125

b)

x	y
8	-92
15	-172.5
34.5	-3
40	-460

c)

x	y
-24	3.6
-10	1.5
18	-2.7
32	-4.8

8. Without actually solving the system of equations state the number of solutions: One, None, or Many

a) $y = 4x - 3$
$12x - 3y = 9$

b) $y = -2x + 5$
$4x - 8y = 24$

c) $y = 3x - 10$
$6x - 2y = 12$

d) $y = 3$
$6x - 2y = 18$

Evaluate each for $w = -8$ $x = -6$ $y = 12$ $z = 4$

1. $-x - 2z^2 + wy$

$= -(-6) - 2(4)^2 + (-8)(12)$

$= 6 - 2(16) - 96 = \boxed{-122}$

2. $w^2 - xz$

$(-8)^2 - (-6)(4)$

$= 64 + 24$

$= \boxed{88}$

3. $-2|w - y| - |x|$

$= -2|-8 - 12| - |-6|$

$= -2|-20| - |-6| \longrightarrow -2(20) - 6$

$= -40 - 6$

$= \boxed{-46}$

Simplify each.

4. $9m^2n + 3mn^2 - 5m^2n + 8m^2n^2 - mn^2 - 11m^2n^2 + m^2n$

$\boxed{5m^2n + 2mn^2 - 3m^2n^2}$

5. $5w(3w + 2) - 8w - 4(6w^2 - 7w + 3) + 7w - 10$

$15w^2 + 10w - 8w - 24w^2 + 28w - 12 + 7w - 10$

$\boxed{-9w^2 + 37w - 22}$

6. The number of pages Elaine reads varies directly with the amount of time she spends reading. It takes her 20 minutes to read 18 pages.

$y = $ # pages read

$x = $ amnt of time

a) State the variation constant, including units.

$k = \dfrac{y}{x} = \dfrac{18p}{20\text{min}} = \boxed{.9 \text{ pages/min}}$

b) Write a direct variation equation. Define your variables.

$\boxed{y = .9x}$

c) Find the number of minutes it will take her to read 100 pages. Round to the nearest hundredth as needed.

use eq:

$\dfrac{100}{.9} = \dfrac{.9x}{.9}$ $\boxed{111.11 \text{ min}}$ or   use a proportion:

$\dfrac{20 \text{ min}}{18 pg} = \dfrac{?}{100 pg}$

7. Is each table an example of Direct Variation? If the table represents Direct Variation write a variation equation and find the value of x when $y = 432$.

a)

x	y	$\frac{y}{x}$
4.8	12	2.5
-8	-20	2.5
36	90	2.5
50	125	2.5

Yes, Direct Var.

$y = 2.5x$

$432 = 2.5x$ $\boxed{x = 172.8}$

b)

x	y	$\frac{y}{x}$
8	-92	-11.5
15	-172.5	-11.5
34.5	-3	-.09
40	-460	

$\boxed{\text{NO, not Direct Var.}}$

c)

x	y	$\frac{y}{x}$
-24	3.6	-.15
-10	1.5	-.15
18	-2.7	-.15
32	-4.8	-.15

$\boxed{\text{Yes, Direct Var}}$

$y = -.15x$

$432 = -.15x$

$\boxed{x = -2880}$

8. Without actually solving the system of equations state the number of solutions: One, None, or Many

a) $y = 4x - 3$

$12x - 3y = 9$

$y = \dfrac{9 - 12x}{-3}$

$y = -3 + 4x$

same line $\boxed{\text{Many Sol}}$

b) $y = -2x + 5$

$4x - 8y = 24$

$y = \dfrac{24 - 4x}{-8}$

$y = -3 + \frac{1}{2}x$

$\boxed{1 \text{ sol}}$ diff slopes

c) $y = 3x - 10$

$6x - 2y = 12$

$y = \dfrac{12 - 6x}{-2}$

$y = -6 + 3x$

$\boxed{\text{NO SOL}}$ parallel lines

d) $y = 3$ —Horizontal Line

$6x - 2y = 18$ — NOT Horizontal

$\boxed{1 \text{ sol}}$ Diff slopes

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