Algebra II
Review Chapter 1

I Pledge Key

Classify each statement as true or false. Write the entire word.

true 1) All integers are rational numbers.

true 2) All irrational numbers are real numbers.

false 3) All rational numbers are natural numbers.

false 4) All real numbers are rational numbers.

false 5) All natural numbers are irrational numbers.

6. Circle all the rational numbers.

1.2376 π $\sqrt{121}$ $1.\overline{23}$ 1.87923541217... $54.98\overline{7}$ $\sqrt{17}$

124 192.7776571... $\sqrt{25}$ $\sqrt{10000000000}$ $\sqrt{1000000000}$ $\sqrt{1}$

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Review of Chapter 1 (For use after Lesson 1–9)

Evaluate each expression if $x = 2$, $y = 5$, and $z = 3$.

1. $x^2 + 2y - yz$ —1

2. $\dfrac{2y + x}{y + 1}$ 2

3. $(y + x)(y - x)$ 21

4. $\dfrac{2y - (z - x)}{xz}$ $\frac{3}{2}$

5. Name the property or definition that justifies each lettered step.

$$
\begin{aligned}
(9 - b) - 4 &= [9 + (-b)] - 4 && \text{a.}\\
&= [9 + (-b)] + (-4) && \text{b.}\\
&= 9 + [(-b) + (-4)] && \text{c.}\\
&= 9 + [-4 + (-b)] && \text{d.}\\
&= [9 + (-4)] + (-b) && \text{e.}\\
&= 5 + (-b) && \text{Substitution}\\
&= 5 - b && \text{f.}
\end{aligned}
$$

Simplify.

6. $4 - (2 - 7) - [-8 - (-6)]$ 11

7. $(-6)(-4)(-10)(-17)$ 4080

8. $(-52 - 8)(43 + 17)$ -3600

9. $-90 \div (-5) \div (-9)$ -2

Solve the equation.

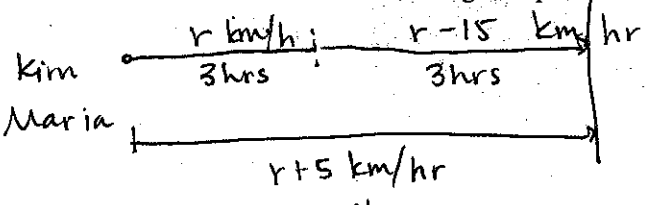
10. $2(7 - 3x) - 4 = 6 - (5 - 3x)$ 1

11. $1.6 - 2.3c = 0.6(5 - 4c)$ 14

12. $\dfrac{2a - 5}{3} + \dfrac{a}{2} = 3$ 4

13. $2x(x - 5) = 16 - x(13 - 2x)$ 16/3

14. Maria and Kim left town at 9:00 A.M. and traveled the same route in separate cars. Kim drove 3 h at a steady speed, then slowed down 15 km/h for 3 more hours. Maria averaged 5 km/h more than Kim's original speed for the entire trip and arrived at their destination at 2 P.M. What was Kim's original speed? 70km/h



r = Kim's original speed

	hr * time	km/hr rate	km distance
Kim1	3	r	3r
Kim2	3	r-15	3(r-15)
Maria	5	r+5	5(r+5)

$5(r+5) = 3r + 3(r-15)$

$5r + 25 = 3r + 3r - 45$

$5r + 25 = 6r - 45$

$70 = r$

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Solving Equations and Solving Problems (For use after Lesson 1–9)

Solve the equation.

1. $2x - 5 = 21$ 13
2. $12 + 4x = x - 9$ −7
3. $3(4 - 2x) + 5 = -7$ 4
4. $0.4n + 5 = 2$ −7.5
5. $16 - (3x - 8) = 3$ 7
6. $7c - 12 = 16 + 3c$ 7
7. $3 - 5(t + 4) = 4$ $-21/5$
8. $-6 - (3a - 7) - 2a = a - 6$ $7/6$
9. $\frac{2}{3}(y - 9) = \frac{3}{4}(y + 8)$ −144
10. $2c(c - 5) = c(2c - 5) - 5$ 1

In Exercises 11–14, substitute the given value of y. Then solve for x.

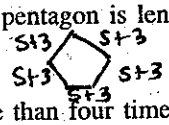
11. $2xy(y + 5) = y^2 - 2(y - x) + 13;\ y = 2$ $1/2$
12. $-y(3x - y^2) = x(1 - y) - y;\ y = -3$ 6
13. Average of three numbers: $y = \frac{-4 + x + 2}{3};\ y = 6$ 20
14. 8-ohm resistance from a parallel network of resistors: $8 = \frac{xy}{x + y};\ y = 10$ 40

Express your answer in terms of the given variable. Give answers in simplest form.

15. A cashier has two one-dollar bills and x five-dollar bills. How much money is that? $\$(5x+2)$

$2(1) + x(5)$

16. Each side s of a regular pentagon is lengthened by 3 cm. What is the perimeter of the resulting pentagon? $5(s+3)$ cm or $5s+15$ cm



17. A number n is two more than four times another. What is the sum of the numbers? $n + \frac{n-2}{4}$ or $4x+2+x$ $5x+2$

$n = 4x + 2 \rightarrow n + x = ?$

$n - 2 = 4x \quad \frac{n-2}{4} = x$

Solve.

18. A change purse contains 14 coins consisting of nickels and dimes and having a total value of \$1.10. How many nickels are there? 6

19. At 10:00 A.M. two cars leave the same location and travel in opposite directions. One car's speed is 50 mi/h, while the other's speed is 55 mi/h. At what time are the cars 273 mi apart? 12:36 pm

18. nickels = n

dimes = $14 - n$

$.05n + .10(14 - n) = 1.10$

$5n + 140 - 10n = 110$

$-5n = -30$

$n = 6$

19. 50mph 55mph

$50t$ $55t$

273 mph

t = hours

$50t + 55t = 273$

$105t = 273$

$t = 2.6$ hours

$\frac{6}{10} \cdot 60 = 36$