

unit 6 exam**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Find the value of x that makes this equation true.

$$2x + 6 = 14$$

- a. 10
b. 7
c. 4

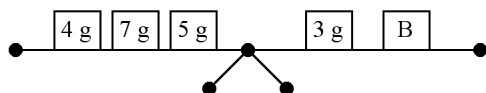
- _____ 2. Janet bought 18 DVDs for \$252. Write an equation you could use to find the cost of each DVD.

a. $C = 252 - 18$

b. $C = \frac{252}{18}$

c. $C = \frac{18}{252}$

- _____ 3. The 2 pans of the scales are balanced. Find the value of the unknown mass B.

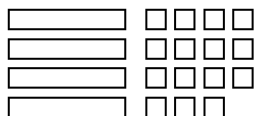


- a. 13 g
b. 47 g
c. 11 g

- _____ 4. This tile represents x .

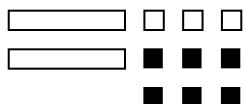
☐ This tile represents $+1$.

Write an expression modelled by this picture.



- a. $x + 15$
b. $4x + 15$
c. $4x - 1$

- _____ 5. A white square represents $+1$, a black square represents -1 , and a rectangle represents the variable x . Write an expression modelled by this picture.



- a. $2x - 6$
b. $2x - 3$
c. $2x + 3$

- _____ 6. Write an equation to find this number: the number reduced by 6 is equal to 8.
Solve the equation.
- a. $x - 6 = 8, x = 14$
 - b. $x - 8 = 6, x = -2$
 - c. $6 - x = 8, x = 14$
- _____ 7. Caitlin worked in a clothing store last weekend for \$6/h. She was also paid a bonus of \$7. She earned a total of \$55. Write an equation you can use to find how many hours she worked. Solve the equation.
- a. $6x + 7 = 55, x = 8$
 - b. $7x + 6 = 55, x = 8$
 - c. $6x - 7 = 55, x = 10$
- _____ 8. Solve this equation: $x - 15 = 8$
- a. 23
 - b. -23
 - c. 120
- _____ 9. Solve this equation: $8x = 16$
- a. 128
 - b. 2
 - c. 8
- _____ 10. Solve this equation: $\frac{x}{7} = 4$
- a. 3
 - b. 28
 - c. 11

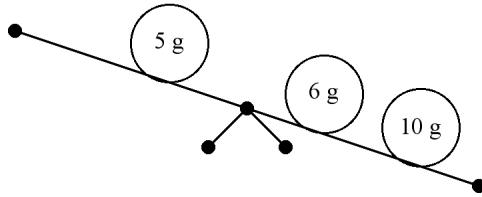
Numerical Response

11. Find the value of x that makes this equation true.
 $4x - 6 = 14$
12. Ivan wants to buy a skateboard that costs \$42. He plans to save \$3 each week to buy the skateboard.
- Solve the equation to find the number of weeks.
13. A 2-pan balance has an unknown mass and a mass of 5 g on the left pan.
The scales are balanced by adding 18 g to the right pan.
Find the value of the unknown mass.

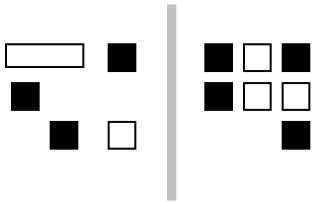
Name: _____

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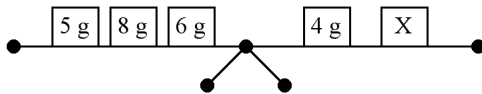
14. What is the mass needed to balance the masses on this 2-pan balance?



15. Tiles are arranged on each side of the line to represent an equation.
The rectangle represents x , a white square represents $+1$, and a black square represents -1 .
Solve the equation modelled by this picture.



16. Justin borrowed \$18. He paid back \$5.
Solve the equation to find how much Justin still owes.
17. Jacqui has \$30 in her savings account. She saves \$20 each week.
How long will it take before she has \$350 in her account?
18. The 2 pans of the scales are balanced. Find the value of the unknown mass X.



unit 6 exam

Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 1 DIF: Moderate REF: 6.1 Solving Equations
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding
2. ANS: B PTS: 1 DIF: Moderate REF: 6.1 Solving Equations
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Communication
3. ANS: A PTS: 1 DIF: Moderate REF: 6.2 Using a Model to Solve Equations
LOC: 7.PR3 | 7.PR6
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding
4. ANS: B PTS: 1 DIF: Easy REF: 6.3 Solving Equations Involving Integers
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Communication
5. ANS: B PTS: 1 DIF: Moderate REF: 6.3 Solving Equations Involving Integers
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Communication
6. ANS: A PTS: 1 DIF: Moderate REF: 6.4 Solving Equations Using Algebra
LOC: 7.PR3 | 7.PR6
TOP: Patterns and Relations (Variables and Equations) KEY: Communication
7. ANS: A PTS: 1 DIF: Difficult REF: 6.4 Solving Equations Using Algebra
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Communication
8. ANS: A PTS: 1 DIF: Easy REF: 6.5 Using Different Methods to Solve Equations
LOC: 7.PR3 | 7.PR6
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding
9. ANS: B PTS: 1 DIF: Easy REF: 6.5 Using Different Methods to Solve Equations
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding
10. ANS: B PTS: 1 DIF: Easy REF: 6.5 Using Different Methods to Solve Equations
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

SHORT ANSWER

11. ANS:
5

PTS: 1 DIF: Moderate REF: 6.1 Solving Equations
LOC: 7.PR3 | 7.PR7
TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

12. ANS:

a) Let w represent the number of weeks it will take Ivan to save \$42.

$$3w = 42$$

b) $w = 14$

It will take 14 weeks.

PTS: 1 DIF: Moderate REF: 6.1 Solving Equations

LOC: 7.PR3 | 7.PR7

TOP: Patterns and Relations (Variables and Equations) KEY: Communication

13. ANS:

The unknown mass is 13 g.

PTS: 1 DIF: Easy REF: 6.2 Using a Model to Solve Equations

LOC: 7.PR3 | 7.PR6

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

14. ANS:

A mass of 11 g is needed for the left pan.

PTS: 1 DIF: Moderate REF: 6.2 Using a Model to Solve Equations

LOC: 7.PR3 | 7.PR6

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

15. ANS:

$$x = 1$$

PTS: 1 DIF: Moderate REF: 6.3 Solving Equations Involving Integers

LOC: 7.PR3 | 7.PR6

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding

16. ANS:

Let x represent the amount Justin owes.

$$x = 18 - 5$$

He still owes \$13.

PTS: 1 DIF: Moderate REF: 6.3 Solving Equations Involving Integers

LOC: 7.PR3 | 7.PR6

TOP: Patterns and Relations (Variables and Equations) KEY: Communication

17. ANS:

Let x represent the number of weeks.

$$30 + 20x = 350$$

$$x = 16$$

It will take 16 weeks.

PTS: 1 DIF: Moderate REF: 6.4 Solving Equations Using Algebra

LOC: 7.PR3 | 7.PR7

TOP: Patterns and Relations (Variables and Equations) KEY: Communication

18. ANS:

Mass X is 15 g.

PTS: 1 DIF: Moderate REF: 6.5 Using Different Methods to Solve Equations

LOC: 7.PR3 | 7.PR6

TOP: Patterns and Relations (Variables and Equations) KEY: Conceptual Understanding