

## Cumulative Test

2A

1. <sup>(1)</sup> Identify the subsets of real numbers to which the number 6 belongs.

Compare the expressions in problems 2–3. Use  $<$ ,  $>$ , or  $=$ .

2. <sup>(4)</sup>  $3^2 - 2 \cdot 2.5$   $\bigcirc$   $(3 + 4) + 6 + 3 - \frac{10}{2}$

3. <sup>(7)</sup>  $[15 + 5 + (3 + 2)] + 3$   $\bigcirc$   $6 + [(7 - 2)^2 - 11]$

4. <sup>(2)</sup> Identify the variables and constants in the expression  $5x + 2$ .

Simplify problems 5–9.

5. <sup>(3)</sup>  $(0.4)^3$

6. <sup>(4)</sup>  $100 - 6^2 - 2 \cdot 3^2 + 7$

7. <sup>(9)</sup>  $-|9 - 3|$

8. <sup>(9)</sup>  $c^7 \cdot d^2 \cdot c \cdot c^2 \cdot d^4$

9. <sup>(7)</sup>  $6 + [72 + (12 - 4)] \cdot 2$

10. <sup>(1)</sup> Terry says that the set of natural numbers is closed under subtraction. Determine whether this statement is true or false. Give a counterexample if the statement is false.

11. <sup>(6)</sup> Dave is scuba diving. He is 52 feet below the surface. If he descends another 35 feet, what will be his position in relation to the surface?

12. <sup>(6)</sup> Find the difference  $\left(-\frac{4}{9}\right) - \left(-\frac{5}{9}\right)$ .

## Cumulative Test

continued

2A

13. <sup>(9)</sup> A car traveled at 290,400 feet per hour. How fast did the car travel in miles per hour?

14. <sup>(2)</sup> Identify the terms in the expression  $\frac{16a}{(2+b)} - c + 2ac - 4$ .

Evaluate each expression in problems 15–16 for the given values.

15. <sup>(9)</sup>  $2n + 3n + mn$  for  $m = 4$  and  $n = 3$

16. <sup>(9)</sup>  $2(x - y)^3 - x^2$  for  $x = 5$  and  $y = 2$

17. <sup>(9)</sup> Order the numbers below from least to greatest.

$-0.8, \frac{2}{5}, 0.825, -\frac{3}{5}$

18. <sup>(10)</sup> The table shows batting averages for 4 baseball players in 2006 and 2007. Which player had the greatest increase in batting average from 2006 to 2007?

	Batting Average	
	2006	2007
Player A	0.331	0.343
Player B	0.267	0.280
Player C	0.297	0.326
Player D	0.313	0.330

19. <sup>(8)</sup> The volume of a bucket of water is 864 cubic inches. How many buckets of water will be needed to fill a basin with a volume of 7 cubic feet?

20. <sup>(9)</sup> One day in January the temperature at 8 A.M. was  $-5^\circ\text{F}$ . By noon, the temperature had risen 15 degrees. What was the temperature at noon?

<p>1. (Natural (counting), Whole, Integers, Rational, Real)</p>	<p>6. <math>100 - 6^2 - 2 \cdot 3^2 + 7</math>  <math>100 - 36 - (2 \cdot 9) + 7</math>  <math>100 - 36 - 18 + 7</math>  <math>64 - 18 + 7</math>  <math>46 + 7 = 53</math></p>	<p>11. <math>(-52) + (-35) = -87</math> feet</p>	<p>16. <math>2(x-y)^3 - x^2</math>  <math>2(5-2)^3 - 5^2</math>  <math>2(3)^3 - 5^2</math>  <math>2 \cdot 27 - 25</math>  <math>54 - 25 = 29</math>  <math>x=5</math>  <math>y=2</math></p>
<p>2. <math>3^2 - 2 \cdot 2.5</math>  <math>9 - 2 \cdot 2.5</math>  <math>9 - 5</math>  <math>4</math></p>	<p>7. <math>- 9-3 </math>  <math>- 6  = -6</math></p>	<p>12. <math>(-\frac{4}{9}) - (-\frac{5}{9})</math>  <math>-\frac{4}{9} + \frac{5}{9} = \frac{1}{9}</math></p>	<p>17. <math>-0.8, \frac{2}{5}, 0.825, \frac{-3}{5}</math>  <math>\downarrow</math>  <math>0.4</math>  <math>\downarrow</math>  <math>-0.6</math>  <math>-0.8, -\frac{3}{5}, \frac{2}{5}, 0.825</math></p>
<p>3. <math>5+5 \div (3+2) + 3</math>  <math>5+5 \div 5 + 3</math>  <math>5+1 + 3</math>  <math>6+3</math>  <math>9</math></p>	<p>8. <math>C^7 \cdot d^{12} \cdot C^1 \cdot C^2 \cdot d^4</math>  <math>C^8 \cdot d^{16}</math>  <math>C^8 = 7+1+2</math>  <math>d^{16} = 2+4</math></p>	<p>13. <math>\frac{290,400}{1 \text{ hr}} \cdot (\frac{1 \text{ mi}}{5280 \text{ ft}}) = ? \frac{\text{miles}}{\text{hr}}</math>  <math>\frac{290,400}{5,280} = 55 \text{ mph}</math></p>	<p>18. A: <math>343 - 331 = .012</math>          B: <math>.280 - .267 = .013</math>          C: <math>326 - 297 = .029</math>          D: <math>.330 - .313 = .017</math></p>
<p>4. Variables = X          Constants = 5, 2</p>	<p>9. <math>6 + [7.2 \div (2-4)] \cdot 2</math>  <math>6 + [7.2 \div -8] \cdot 2</math>  <math>6 + 9 \cdot 2</math>  <math>6 + 18 = 24</math></p>	<p>14. Terms: <math>\frac{16a}{(2+b)}, c, 2ac, \frac{b}{2}</math></p>	<p>19. <math>864 \text{ in}^3 = ? \text{ ft}^3</math>  <math>864 \text{ in}^3 \cdot (\frac{1 \text{ ft}}{12 \text{ in}})^3 \cdot (\frac{1 \text{ ft}}{12 \text{ in}})^3 \cdot (\frac{1 \text{ ft}}{12 \text{ in}})^3 = \frac{864}{1728} \text{ ft}^3</math>  <math>7 \div .5 = 14 \text{ buckets}</math></p>
<p>5. <math>4^3 = 64</math></p>	<p>10. False, if you subtract a negative, which is it a natural number  <math>5 - 11</math>, you get</p>	<p>15. <math>2n + 3n + mn</math>  <math>(2 \cdot 3) + (3 \cdot 3) + (4 \cdot 3)</math>  <math>6 + 9 + 12 = 27</math></p>	<p>20. <math>-5^\circ F + 15^\circ F = 10^\circ F</math></p>