SOLUTIONS

The Integers: Chapter Test 1

1. Which operation will result in a negative answer?

   a. $-7 - -12$

   b. -7×-2

   c. $-3 + -1$

   d. $-40 \div -2$

2. Which of the following is NOT equivalent to $(-4)^2$?

   a. -4×-4

   b. $-1 \times 4 \times -1 \times 4$

   c. -4^2

   d. 16

3. Given the years of birth and death of the following people, who lived the longest?

   a. Plato: born in 428 B.C. and died in 348 B.C. 80 years

   b. Antoine: born in 83 B.C. and died in 30 B.C. 53 years

   c. Caesar: born in 101 B.C. and died in 44 B.C. 57 years

   d. Alexander the Great: born in 356 B.C. and died in 323 B.C. 33 years

4. Calculate $(-11) + (-8)$

   a. $(-5 - 6) + (-2)^3 = ?$ $= -19$

   b. $7 \times -2 \div 14 = ?$ $-14 \div 14$ $= -1$

5. Order the following numbers in ascending order: smallest to biggest

   -5 6 -8 -7 $+12$ 3 -4 -6

   Answer: $-8, -7, -6, -5, -4, 3, 6, 12$

6. Express the following statements using integers

   a. Peter owes his father $25. -25

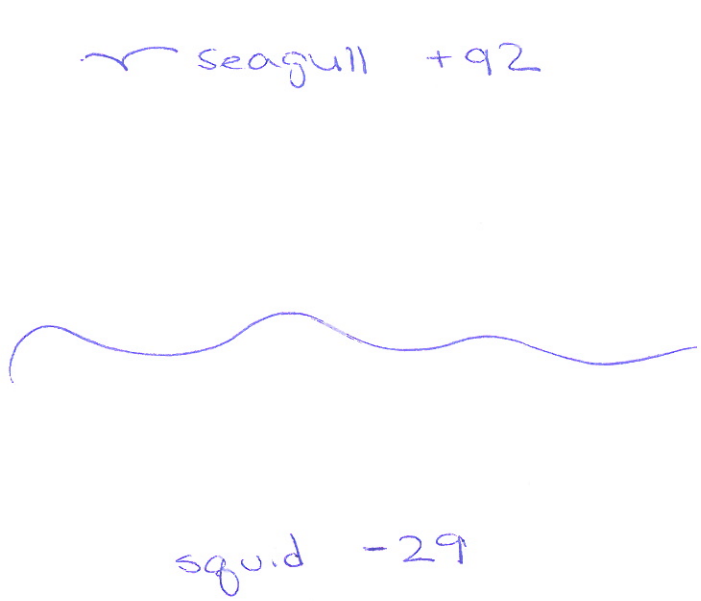
   b. 75 m above the sea level. $+75$

   c. A well is dug 34 m into the ground. -34

7. A Roman warrior was born in 15 B. C. and he died in 27 A. D. How old was this warrior when he died?

   $15 + 27 = 42$ years

(8)



distance =

$92 - (-29)$

$92 + 29$

$121m$

(9) Sarah:

$-5 + 6 - 3 - 5 + 2 - 14 = -19m$

George: Napping @ 0m

The difference: $0 - (-19)$

$= 0 + 19$

$= 19m$

(10) Total: 25 questions

↳ 17 correct

4 blank

4 wrong

$\therefore (17)(4 \text{ points}) + (4)(-1 \text{ point}) + (4)(-3 \text{ points})$

$= 68 + (-4) + (-12)$

$= 52$ points

8. A seagull is flying 92 meters above the water. A giant squid is swimming 29 meters below sea level. What distance separates the two animals as the bird flies directly over the squid?

9. Sarah and George were hiking in the mountains. George decides to have a nap after lunch. Sarah decides to continue hiking around the trails while George is sleeping. On her hiking trail, there were some up and downs. She starts with a 5 m drop from their lunch site. Then the trail went up 6 m, down 3 m, down 5 m, up 2 m and finally dropped down another 14 m. At this point, Sarah stops to have a rest and a drink of water. What is the difference in elevation between George and Sarah while she is taking her break?

10. Stephanie was playing a video trivia game. For every correct answer she received 4 points, for every wrong answer 3 points were taken away and for every answer she left blank she lost 1 point. Out of 25 questions, she answered 17 correctly and left 4 blank. What score did Stephanie receive at the end of the game?

Extension

11. Emily has a certain amount in her bank account at the beginning of the week. During this week she went shopping and spent $146. She worked three evenings at a book store and received a payment of $35 for each night she worked. Friday night she went out to the movies with her friends and spent $24. Saturday night she went out to dinner and spent $38. At the end of the week her bank account was overdrawn by $18. How much money did Emily have in her bank account at the beginning of this week?

12. Find the missing numbers

   a. $-6 \times \square - 7 = 11$

   b. $\square \div 2 - 16 = -23$

(11) x = amount in bank account at the beginning of the week

$$x - 146 + (3)(35) - 24 - 38 = -18$$

$$x - 146 + 105 - 24 - 38 = -18$$

$$x - \cancel{103} = -18 \quad +103$$
$$+\cancel{103}$$

$$x = 85$$

Emily had \$85 at the beginning of the week.

(12) a $-6 \times \square - \cancel{7} = 11 \quad +7$
$+\cancel{7}$

$$\frac{-6 \times \square}{-6} = \frac{18}{-6}$$

$$\square = -3$$

check:

$$-6 \cdot -3 - 7$$
$$= 18 - 7$$
$$= 11 \checkmark$$

(b) $\square \div 2 - \cancel{16} = -23 \quad +16$
$+\cancel{16}$

$$(\square \div \cancel{2}) \cancel{\times 2} = (-7) \times 2$$

$$\square = -14$$

Check: $-14 \div 2 - 16$
$= -7 - 16$
$= -23$

The Integers: Chapter Test 2

1. The following data was collected about the temperatures during the last week of February.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
–20°C	–15°C	–19°C	–7°C	–12°C	–3°C	–15°C

Which of the following statements in FALSE?

a. Monday's temperature was the coldest

b. Wednesday's temperature was colder than Friday's

c. The difference between the coldest and warmest day of the week was 17°C

d. The average temperature for Wednesday and Thursday was -26°C

2. Which one of the following statements is definitely true?

a. A negative multiplied a negative results in a negative

b. A positive added to a positive results in a negative

c. A positive multiplied by a negative results in a negative

d. A negative raised to the odd power results in a positive

3. Order the following from least to greatest

–7 2 –3 5 11 –1

a. –1, 2, –3, 5, –7, 11

b. 1, –3, –7

c. –7, –3, –1, 2, 5, 11

d. 7, 5, –3, 2, –1

4. Calculate

a. $-3 \times -2 + 8 \div -4 \times -2 = ?$

$6 + 8 \div -4 \times -2$
$6 + -2 \times -2$
$6 + 4$
10

b. $-3^2 \div -9 + (5 - 10)^2 = ?$

$-3^2 \div -9 + (-5)^2$
$= -9 \div -9 + 25$
$= 1 + 25$
$= 26$

5. A Greek mathematician was born in 17 B. C. and died in 26 A. D. How old was the mathematician when she died? $17 + 26 = 43$ years old

6. Emma was doing a project on the change in temperature during the second week of March. Here is the data she collected:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
–4°C	–3°C	+7°C	+8°C	–5°C	–1°C	0°C

She calculated the average and the range (the difference between the highest and the lowest temperature) to present it to her class. Help Emma with her calculations.

(6) Average:

$$\frac{-4 + -3 + 7 + 8 + -5 + -1 + 0}{7} = \frac{2}{7} = 0.29$$

Range = Highest − lowest

$= 8 - (-5)$

$= 8 + 5$

$= 13°C$

(7) Range $= 40 - (-52)$

$= 40 + 52$

$= 92°$

(8) $-32 + (4)(12) + (2)(-14)$

$= -32 + 48 + (-28)$

$= -12$

the balance is $-\$12$.

(9) $-350 + 200 - 45$

$= -195$

She has a balance of \$-195.

(10) 20 minutes: $(6m)(20)$

$= 120m$

$-250m + 120m = -130m$

The sub. is at 130m below sea level after 20 minutes.

(11) $(-7)(0) + (3)(-1) + (1)(-2) + (4)(1) + 3(2)$

$= 0 + (-3) + (-2) + 4 + 6$

$= 5$

His final score was 5 above Par.

(12) $\dfrac{(6)(-12) + (4)(4) + (3)(-6) + (2)(5) + (5)(0)}{20}$

$= \dfrac{-72 + 16 - 18 + 10 + 0}{20}$

$= \dfrac{-64}{20} = -3.2°C$

The average temp. was $-3.2°C$.

7. The hottest and coldest temperatures in Canada in 2012 were recorded as follows, +40°C and –52°C. What is the range (the difference between the highest and the lowest temperature) between these temperatures?

8. Simon has a balance of –$30 in his bank account. He receives 4 checks for $12 each and has 2 bills to pay that are $14 each. What is Simon's account balance after cashing in the checks and paying the bills?

9. Lisa owes $350 on her credit card. She makes a $200 payment and buys a $45 sweater on the same day. What is her credit card balance at the end of that day?

10. A submarine was 250 m below sea level. It started rising at a rate of 6 m per minute. What is the submarine's location, relative to the sea level, after 20 minutes?

Extension

11. In golf, "par" is the standard score for a hole. The golfer's score is determined according to the number of strokes played above or below par. The following table represents the scores given to a golfer:

Name of score	Numerical value of score
Par	0
Birdie	–1
Eagle	–2
Bogey	+1
Double bogey	+2

During a tournament a golfer had 7 pars, 3 birdies, 1 eagle, 4 bogeys and 3 double bogeys. Relative to par, what was the final score for this golfer?

12. For twenty days Susan was recording the temperature every day at 5 pm. She noticed that some temperatures were repeated over this period. Six times the temperature was -12°C, four times it was +4°C, three times it was -6°C and twice the temperature was 5°C. The rest of the days it was 0°C. What was the average temperature during those twenty days at 5 pm? *Recall that to calculate the average you have add up all of the temperatures and then divide the result by the number of days.*