

Math | With Erwin

# **ASVAB Arithmetic Reasoning**

Practice Test 01

## INSTRUCTIONS

### Work Through the Test Carefully

This test is intended to build a solid understanding of the subject. It is not a simulation of a timed exam environment.

- **Answer all questions.** Completing the entire test ensures that no gaps in your understanding remain.
- **No calculator.** Work through the arithmetic manually to develop a better intuition for numbers.
- **No timer.** Speed will come naturally as you gain confidence. Focus entirely on the logic of the problem.

## VIDEO SUPPORT

### Using the QR Codes

The QR codes link to video explanations where the questions are solved and discussed in detail.

**On Paper:** Scan the QR code next to a question with your camera.

**Digital:** Click the QR code to open the video in your browser.

## Questions

1



What is 65% of 420?

- a) 273.00
- b) 252.00
- c) 294.00
- d) 260.00

2



A vendor buys 40 notebooks for \$4 each and sells each notebook for \$7.

What is the total profit, in dollars?

- a) 280
- b) 160
- c) 120
- d) 80

3



If  $y = 3$ , what is the value of  $8y - y$ ?

- a) 24
- b) 21
- c) 8
- d) 5

4



A box contains one gross of pens. If 4 pens are used each day, how many days does one box last?

- a) 144
- b) 36
- c) 48
- d) 4

5



Two numbers have a sum of 84. One number is 10 greater than the other.

What is the smaller number?

- a) 32
- b) 34
- c) 37
- d) 42

6



A survey has 48 participants. Eighteen participants prefer option A.  
What percent of the participants prefer option A?

- a) 27.5
- b) 32.5
- c) 37.5
- d) 42.5

7



What is the value of  $-3(5 - 2 \cdot 3) + 4$ ?

- a) -5
- b) 1
- c) 7
- d) 13

8



A snack costs 25 cents. During a promotion, 4 snacks cost 80 cents.  
How much money is saved when buying 12 snacks, in cents?

- a) 15
- b) 30
- c) 60
- d) 90

9



A football field is 360 feet long, including the end zones, and 160 feet wide.  
What is the total area of the field, in square feet?

- a) 520
- b) 57,600
- c) 51,200
- d) 576,000

10



If  $a = 2$ ,  $b = 5$ , and  $c = 4$ , what is the value of  $3a + 6bc + 2b$ ?

- a) 140
- b) 136
- c) 156
- d) 166

11



A streaming service uses  $\frac{1}{8}$  of its daily schedule for documentaries. The service streams for 24 hours each day.

How many hours are used for documentaries, in hours?

- a) 8
- b) 6
- c) 3
- d) 2

12



A runner has times of 52, 47, 55, and 46 seconds. To have an average of 48 seconds over five races, what time does the runner need in the next race, in seconds?

- a) 40
- b) 42
- c) 44
- d) 48

13



Which expression is equal to 0?

- a)  $3(2 - 2)$
- b)  $(4y)(2y)$
- c)  $5 - (3 \cdot 2)$
- d)  $2 - 2 + 4$

14



A protective coating costs \$0.80 per square yard. A rectangular patio measures 15 feet by 21 feet.

What is the total cost to coat the patio, in dollars?

- a) 252.00
- b) 28.00
- c) 224.00
- d) 35.00

15



A shopper has \$68.20. A T-shirt costs \$18.00. The sales tax is 5%.

What is the greatest number of T-shirts the shopper can buy?

- a) 2
- b) 3
- c) 4
- d) 5

16



A cyclist rides at 30 miles per hour. Forty minutes later, a second cyclist leaves the same location and rides in the same direction. The second cyclist catches up 2 hours after leaving.

What is the speed of the second cyclist, in miles per hour?

- a) 36
- b) 38
- c) 40
- d) 42

17



A team has 8 workers and must clean 72 offices. At the end of the day, 24 offices are not cleaned.

On average, how many offices does each worker clean?

- a) 6
- b) 7
- c) 9
- d) 12

18



A company's revenue increases by \$720,000. This is 20% more than expected.

What is the expected increase, in dollars?

- a) 480,000
- b) 500,000
- c) 600,000
- d) 700,000

19



What is the prime factorization of 840?

- a)  $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 7$
- b)  $2 \cdot 2 \cdot 3 \cdot 5 \cdot 7$
- c)  $2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 \cdot 7$
- d)  $3 \cdot 5 \cdot 7$

20



A walking path measures  $\frac{1}{3}$  mile per lap.

How many laps does a person walk to cover  $4\frac{1}{2}$  miles?

- a) 12
- b) 13.5
- c) 15
- d) 18

21



An investor deposits \$4,500 in an account that earns 4% annual interest. No additional money is added.

What is the total amount in the account after 1 year, in dollars?

- a) 180
- b) 4,680
- c) 4,504
- d) 4,320

22



A strip has a total length of 20 inches. It is divided into three pieces. The longest piece is four times the length of the shortest piece. The middle piece is three times the length of the shortest piece.

What is the length of the shortest piece, in inches?

- a) 2,5
- b) 3,5
- c) 4
- d) 3

23



A mixture contains 55% component  $X$ , 30% component  $Y$ , 10% component  $Z$ , and 5% component  $W$ . The total mixture is 24 gallons.

How many gallons of component  $X$  are required, in gallons?

- a) 10
- b) 12
- c) 13.2
- d) 14

24



The sequence is 4, 9, 19, 39, 79. Each term is based on the previous term. If  $x$  represents a term in the sequence, which expression gives the next term?

- a)  $2x + 1$
- b)  $2x - 1$
- c)  $3x - 1$
- d)  $x + 5$

25



A water tank has a capacity of 50 gallons. The tank is filled to  $\frac{2}{5}$  of its capacity.

How many gallons of water are in the tank, in gallons?

- a) 10
- b) 15
- c) 20
- d) 25

26



Five pizzas are each cut into 12 equal slices. After a party,  $\frac{1}{3}$  of one pizza,  $\frac{1}{6}$  of another pizza,  $\frac{1}{4}$  of another pizza, and  $\frac{1}{2}$  of another pizza remain.

How many slices of pizza are left, in slices?

- a) 13
- b) 15
- c) 19
- d) 17

27



If  $a = -2$ ,  $b = 3$ , and  $c = -4$ , what is the value of  $2a^2b - 3bc + 4(a - c)^2 - 5b$ ?

- a) 61
- b) 69
- c) 53
- d) 107

28



A truck travels at 60 miles per hour for 2 hours. The truck then travels at 45 miles per hour for 5 hours.

Which expression represents the total distance traveled, in miles?

- a)  $\frac{60}{2} + \frac{45}{5}$
- b)  $\frac{60}{2} - \frac{45}{5}$
- c)  $(2 \cdot 60) + (5 \cdot 45)$
- d)  $(5 \cdot 45) - (2 \cdot 60)$

29



A maintenance worker walks a route that is 9 city blocks long. He walks at a rate of 12 city blocks every 36 minutes.

How long does it take to complete the route, in minutes?

- a) 18
- b) 24
- c) 30
- d) 27

30



A fitness instructor earns \$18 per hour. She teaches on Tuesdays and Fridays from 9 AM to 11 AM and from 12 PM to 6 PM. She also teaches on Sundays from 10 AM to 2 PM.

What is the total amount she earns in one week, in dollars?

- a) 324
- b) 396
- c) 360
- d) 432

## Solutions

1: a) 273.00

2: c) 120

3: b) 21

4: b) 36

5: c) 37

6: c) 37.5

7: c) 7

8: c) 60

9: b) 576,000

10: b) 136

11: c) 3

12: a) 40

13: a)  $3(2 - 2)$

14: b) 28.00

15: b) 3

16: c) 40

17: a) 6

18: c) 600,000

19: a)  $2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 \cdot 7$

20: b) 13.5

21: b) 4,680

22: a) 2,5

23: c) 13,2

24: a)  $2x + 1$

25: c) 20

26: b) 15

27: a) 61

28: c)  $(2 \cdot 60) + (5 \cdot 45)$

29: d) 27

30: c) 360

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Practice Materials – More Tests & Problem Sets

[www.witherwin.com](http://www.witherwin.com)

