

ACT MATH PRACTICE PAPER

1. At what point do the lines $y=14x+7$ and $y=4x+7$ intersect?

(0,0)

(0,-7)

(7,0)

(0,7)

They do not intersect

2. Solve $|z+5|>2$

$z>5$

$z>-3$ or $z<-7$

$z<2$

$-7<z<-3$

$2<z<5$

3. Solve $|z-3|\leq 5$

No solutions

$-2\geq z$

$$z \leq 8$$

All real numbers

$$-2 \leq z \leq 8$$

4. Which of the following is equivalent to $2x^2(xy^2+5x^2y^2)$?

$$2x^3y^2+10x^4y^2$$

$$2xy^2+x^4y^2$$

$$2x^3y^2+x^4y^2$$

$$x^3y^2+10x^4y^2$$

$$2x^3y^2+10x^4y$$

5. What value of x and y solve the following system of equations?

$$3x+3y=15$$

$$y-x=3$$

$$x=1, y=4$$

$$x=2, y=5$$

$$x=2, y=3$$

$$x=1, y=1$$

$x=4, y=1$

6. If $x^2=25$ and $y^2=81$, what is the greatest value that $(x-y)^2$ can have?

25

100

196

81

16

7. Simplify: $\frac{x^{-2}y^5z^{-4}}{x^4y^3}$

$\frac{y^2z^4}{x^2}$

$\frac{y^8}{x^6z^4}$

$\frac{x^6y^2}{z^4}$

$\frac{y^2}{x^2z^4}$

$\frac{y^2}{x^6z^4}$

8. For all x , $(5x+2)^2 = ?$

$25x^2+10x+4$

$10x+4$

$25x^2+4$

$10x^2+4$

$25x^2+20x+4$

9. What value of x satisfies the equation $\log_x 64=2$?

8

4

6

10

2

10. Simplify:

$$x^2+x-23x^2+9x+6 \div (x-1)$$

$13(x^2+1)$

$13(x^2-2)$

$13(x-1)$

$13(x+2)$

$13(x+1)$

11. If $a=2$ and $b=4$, what is $-4(ab)^3+(3a-2b)$?

-2046

-32,770

-2050

2050

2046

12. f pigeons land on a telephone wire. Then, $g+2$ pigeons fly away. Find an expression for the number of pigeons remaining.

$2(f+g)$

$f-g+2$

$f+g+2$

$f-g-2$

$2(f-g)$

13. If $f(x)=4x^2+3x+2$ and $g(x)=x+7$, what is $f(g(x))$?

$4x^2+3x+72$

$4x^2+3x+219$

$4x^2+17x+72$

$4x^2+17x+219$

$4x^2+59x+219$

14. If $f(x)=x^2+3$, then $f(x+h)=?$

x^2+h^2

$x^2+2xh+h^2+3$

x^2+3+h

x^2+h^2+3

$x^2+2xh+h^2$

15. If $f(6)=7$ and $f(10)=17$, which of the following could represent $f(x)$?

$2.5x-8$

$3x-1$

$x+4$

$2x+5$

$1.5x-2$

16.

Evaluate the expression below.
 $\sin(45^\circ) + \cot(45^\circ)$

$\frac{2 + \sqrt{2}}{2}$

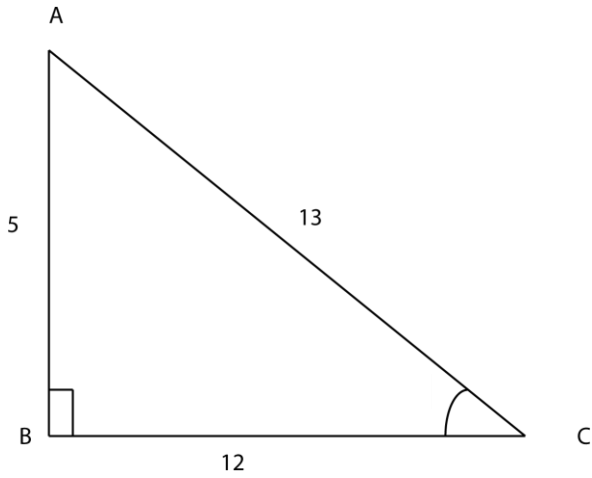
$\frac{2 + \sqrt{3}}{2}$

$\sqrt{2}$

$\frac{1 + \sqrt{3}}{2}$

$\frac{1 + \sqrt{2}}{2}$

17.



What is the sine of $\angle ACB$?

60°

$12/5$

$12/13$

$5/13$

$5/12$

18. If $\tan(x) = \frac{5}{12}$, then what is $\cos(x) = ?$

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$\frac{13}{12}$
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$\frac{5}{13}$
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$\frac{5}{12}$
<input type="text" value="select"/>
$\frac{12}{13}$
<input type="text" value="select"/>
$\frac{13}{5}$

19. What is the reference angle for 855° ?

<input type="text" value="select"/>
720°
<input type="text" value="select"/>
495°
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55°
<input type="text" value="select"/>
45°
<input type="text" value="select"/>
360°

20. Consider a right triangle with an inner angle $x(x < 90^\circ)$.

If

$$\cos x = \frac{3}{5}$$

and

$$\sin x = \frac{4}{5}$$

what is $\tan x$?

5

$\frac{4}{3}$

$\frac{1}{5}$

1

$\frac{3}{4}$

21. Multiply the complex numbers:

$$(3+4i)(2+8i).$$

$-26+32i$

$-24+30i$

$22+32i$

$-26-32i$

$26+32i$

22. What is the value of the coefficient in front of the term that includes x^2y^7 in the expansion of $(2x-y)^9$?

144

-36

-144

36

23. Simplify the following expression:

$$2x^4 - 32x^2 - 8$$

$2(x^2 - 4)$

$(x+2)(x-2)$

$x^2 - 4$

2

$x^2 + 4$

24. Solve for x.

$$16x + 7 = 26$$

24

41

36

12

28

25. On Friday night, Maria sells 15 of her stock of apples. On Saturday, she sells 14 of the remaining apples. What fraction of her original stock of apples does Maria have left for sale on Sunday?

25

12

35

13

920

26. A professional football player's contract states that he will earn a salary of \$1 million his first year. He would then have a 15% increase every year thereafter for the next 5 years. What would he make in his 6th and final season on the contract?

\$5.75 million

\$3.01 million

\$2.01 million

\$2.32 million

\$1.75 million

27. If four consecutive odd integers greater than 9 are added together, what is the smallest possible sum of those four integers?

72

48

56

55

64

28. Find the sum of the first fifteen terms in an arithmetic sequence whose sixth term is 8 and whose ninth term is -7 .

123

117

15

 -30

29. The expression $x^2 - 25/x^2 + 11x + 30$ is equivalent to:

 $x - 6/x - 5$ $x + 6/x + 5$ $x - 5/x + 6$ $x + 5/x - 6$ $x + 6$

30. The area of a square is 25cm^2 . If the square is enlarged by a factor of 2, what is the perimeter of the new square?

75 cm

50 cm

40 cm

100 cm

80 cm