Direct, inverse and joint variation worksheet – Grade 10

Grade 10 · Mixed level · 20 questions · **Version X6780**

Name: _____ Date: _____ Score: ___ / 20

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1. y varies directly with x, and y = 80 when x = 8. What is y when x = 8?

   Answer: _____

2. As a car's speed goes up, the time for a fixed trip goes down. What type of variation is this?

   A. Inverse **B.** Direct **C.** Neither

3. Chloe earns 575 dollars for 25 hours. Pay varies directly with hours. What is the pay for 30 hours, in dollars?

   Answer: $_____

4. y varies inversely with x, and y = 10 when x = 7. What is y × x always equal to?

   Answer: _____

5. y varies directly with x, and y = 10 when x = 2. What is y when x = 8?

   Answer: _____

6. Amara earns 187 dollars for 11 hours. Pay varies directly with hours. What is the pay for 16 hours, in dollars?

   Answer: $_____

7. y varies inversely with x, and y = 11 when x = 2. What is y × x always equal to?

   Answer: _____

8. A trip takes 4 h at 50 km/h. How long does it take at 30 km/h, in hours? Give your answer to two decimal places.

   Answer: _____ km

9. Which table of (x, y) shows inverse variation?

   A. (1, 12), (2, 6), (3, 4) **B.** (1, 3), (2, 6), (3, 9) **C.** (1, 5), (2, 7), (3, 9)

   D. (1, 1), (2, 4), (3, 9)

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10. y varies inversely with x, and y = 30 when x = 5. What is y when x = 50?

    Answer: _____

11. 12 painters take 8 days. How many days do 6 painters take, at the same rate?

    Answer: _____ days

12. y varies inversely with x, and y = 22 when x = 2. What is y when x = 22?

    Answer: _____

13. 6 painters take 2 days. How many days do 3 painters take, at the same rate?

    Answer: _____ days

14. A trip takes 6 h at 60 km/h. How long does it take at 40 km/h, in hours?

    Answer: _____ hours

15. Light intensity varies inversely with the square of distance. It is 45 units at 1 m. What is it at 3 m, to two decimal places if needed?

    Answer: _____ m

16. y varies jointly with x and z, and y = 64 when x = 4 and z = 4. What is y when x = 8 and z = 3?

    Answer: _____

17. The stopping distance of a car varies with the square of its speed. It is 567 m at 90 km/h. What is it at 270 km/h, in metres?

    Answer: _____ m

18. A gear with 8 teeth turns at 30 rpm. It drives a gear with 4 teeth. How fast does that gear turn, in rpm?

    Answer: _____

19. y varies jointly with x and z, and y = 360 when x = 6 and z = 5. What is y when x = 6 and z = 4?

    Answer: _____

20. The stopping distance of a car varies with the square of its speed. It is 729 m at 90 km/h. What is it at 270 km/h, in metres?

    Answer: _____ m

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Answer key · Version X6780

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1. **80**
2. **A (Inverse)**
3. **690**
4. **70**
5. **40**
6. **272**
7. **22**
8. **6.67**
9. **A ((1, 12), (2, 6), (3, 4))**
10. **3**
11. **16**
12. **2**
13. **4**
14. **9**
15. **5**
16. **96**
17. **5103**
18. **60**
19. **288**
20. **6561**

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